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Country Classification

Opportunities, Risks, Harm and Parental Mediation

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Previous reports and publications from *EU Kids Online* include:

- Livingstone, S., Kirwil, L., Ponte, C. and Staksrud, E., with the EU Kids Online Network (2013) In their own words: What bothers children online? LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/48357/>
- D'Haenens, L., Vandonink, S. and Donoso, V. (2013) How to cope and build resilience. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/48115/>
- Livingstone, S., Ólafsson, K., O'Neill, B. and Donoso, V. (2012) Towards a better internet for children: findings and recommendations from EU Kids Online to inform the CEO coalition. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/44213/>
- Haddon, L., Livingstone, S. and the EU Kids Online network (2012) EU Kids Online: National perspectives. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/46878/>
- Smahel, D., Helsper, E., Green, L., Kalmus, V., Blinka, L. & Ólafsson, K. (2012) Excessive internet use among European children. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/47344/>
- Dürager, A. & Livingstone, S. (2012) How can parents support children's internet safety? <http://eprints.lse.ac.uk/id/eprint/42872>
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- Görzig, A. (2011) Who bullies and who is bullied online? A study of 9-16 year old internet users in 25 European countries. <http://eprints.lse.ac.uk/39601/>
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- Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children: Full findings*. <http://eprints.lse.ac.uk/33731/>

The EU Kids Online network has been funded by the EC Safer Internet Programme in three successive phases of work from 2006-14 to enhance knowledge of children's and parents' experiences and practices regarding risky and safer use of the internet and new online technologies.

As a major part of its activities, EU Kids Online conducted a face-to-face, in home survey during 2010 of 25,000 9-16 year old internet users and their parents in 25 countries, using a stratified random sample and self-completion methods for sensitive questions. Now including researchers and stakeholders from 33 countries in Europe and beyond, the network continues to analyse and update the evidence base to inform policy.

For all reports, findings and technical survey information, as well as full details of national partners, please visit www.eukidsonline.net

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EXECUTIVE SUMMARY

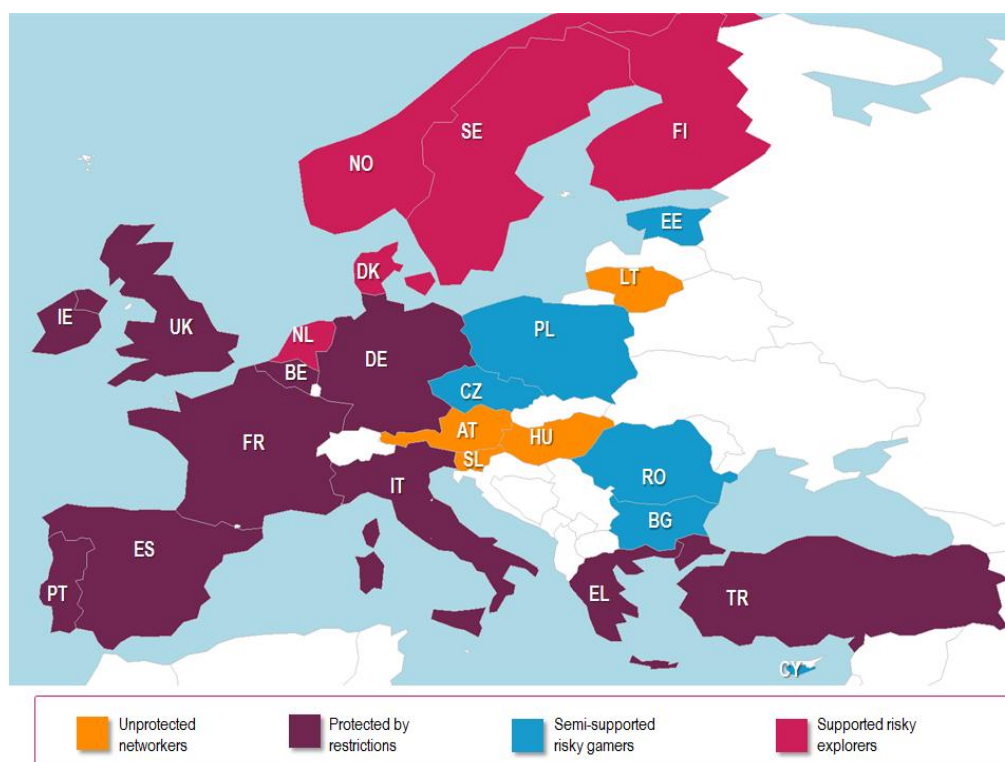
This report updates and deepens the understanding of cross-national differences among the countries surveyed in EU Kids Online. Where the previous classification was based simply on the percentage of children in each country who used the internet daily, and who had encountered one or more risks, this report examines the range and type of online opportunities, risks and harm experienced by the children in each country. It also takes into account the ways in which parents mediate or regulate their children's internet use in each country.

Clusters of countries are most clearly distinguished in terms of sexual content risks. Children who are bullied or who give

away personal data are uniformly distributed across the countries. Using these and many other factors, the report identifies four country clusters overall: unprotected networkers, protected by restrictions, semi supported risky gamers, and supported risky explorers.

This new analysis reveals that differences within countries are substantially larger than differences between countries, whether measured in terms of online opportunities, risk of harm or forms of parental mediation. The advantage of such pan-European similarities is that it makes sense for policy makers in one country to learn from the best practice initiated in another.

New classification of online opportunities, risks, harm and parental mediation clusters



On the other hand, the analysis also makes it clear that, to anticipate the online experience of any individual child, a host of factors must be considered – merely knowing where they live is insufficient as a guide to the opportunities or risks they may experience.

Findings detailed in this report give hope that parents' mediation strategies will develop positively and constructively alongside the use of their children's internet use. **Nevertheless, based on the patterns of children's online risks, harm and parenting practices across Europe there is the possibility of a more negative pattern developing in some countries.**

There is concern that both too much parental restriction in the *protected by restrictions* cluster and the lack of support for children's online use in the *unsupported networkers* cluster might lead to higher levels of harm when risk is encountered.

Supported risky explorers (Denmark, Finland, the Netherlands, Norway and Sweden)

This cluster has more children who are experienced social networkers. They encounter more sexual risks online and their more parents are actively involved in guiding their children's internet use.

Parental mediation might co-evolve with risk and opportunity taking by children: as children gain more experience and encounter more risks, parents engage more actively in safeguarding their internet use. There is, however, a relatively small group of vulnerable children in these countries that experience similar levels of risk to their peers

but lack the parental mediation and opportunities also enjoyed by their peers.

Policy makers should therefore support parents and schools, and stimulate industry players to enhance responsible practices in relation to internet safety, including seeking to reach and support those few vulnerable children may 'get lost' in an environment full of experts.

Semi-supported risky gamers (Bulgaria, Cyprus, Czech Republic, Estonia, Poland and Romania)

In these countries, children encounter only moderate online opportunities, mainly focused on entertainment, and games in particular. Yet they still experience relatively high levels of risk and harm: some encounter a specific risk, others a range of risks.

Parents undertake rather diverse types of mediation in these countries, including active and restrictive forms of mediation, although it seems these are relatively ineffective. This may be because the online opportunities and associated digital skills have only emerged relatively recently in these countries, so supportive structures and good practice are not yet established.

Although parents seem to be trying strategies across the board, further investigation is needed to understand why levels of risk are relatively high and what further interventions would be beneficial to encourage opportunities and reduce harm.

Protected by restrictions (Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Spain, Turkey and the UK)

Children's online experiences in this cluster of countries is characterised by relatively low levels of risk probably because internet use is also more limited and largely restricted to practical activities. While parents might be glad that their restrictive mediation practices prevent risk, it does seem that they may miss out on many of the online opportunities.

The question for policy makers, parents and educators in these countries is whether opportunity uptake can be increased while simultaneously limiting more extensive risk of harm. It is possible that this could be achieved by a move away from more restrictive forms of mediation towards more active mediation patterns.

Such an approach would have to acknowledge that risk will thereby result, and further investigation is needed to see whether children can become sufficiently resilient to cope with risk when they encounter it.

Unprotected networkers (Austria, Hungary, Lithuania and Slovenia)

Finally, there is a cluster of countries where children's experiences are fairly narrow but potentially problematic: the social aspects of Web 2.0 seem to have been taken up with gusto and the children subsequently encounter risks but not as much harm, from being in contact with these opportunities.

Here the challenge is that parents are not as involved in their children's internet use as in the supported risky explorers cluster that they otherwise resemble, probably because, as with the semi-supported risky gamers, the internet is a relatively recent addition in many families, especially for the parents.

INTRODUCTION

Cross-national research is done for several purposes. Some EU Kids Online reports focus largely on how different factors related to children's internet use, risks, harm and parental mediation vary between young people in Europe (Dürager & Livingstone, 2012; Hasebrink et al, 2009; Livingstone et al, 2011; Livingstone & Olafsson, 2011; Lobe et al, 2011). Some have gone beyond that and have looked at how these relationships vary between individual countries. Cultural differences, information and communication technology (ICT) diffusion and policies, family dynamics, the educational system and other country-specific traditions and values have all been suggested as influential factors for country differences in internet opportunities taken up, risks and harms encountered and parental mediation (Haddon et al, 2012; Helsper, 2012).

However, one important and slightly different approach is to not just compare individual countries but to group them in terms of similarities and differences. This approach is taken in this report and allows for a cross-European view, where countries are not seen in isolation but as linked to others. By grouping countries into larger clusters, stakeholders will be able to learn from similarities in policies and initiatives across these countries and, when other clusters of countries have different, possibly preferred characteristics, to change according to what has worked elsewhere. This can be understood as a benchmarking approach where countries with largely similar

characteristics but different outcomes are seen as examples of how positive outcomes might be achieved or negative outcomes avoided. Similarly, much can be learned from countries that have relatively similar outcomes in terms of opportunities, risk and harm but that have taken different policy and mediation strategies to get to that point.

Meaningful and rigorous segmentation means an increased understanding of the landscape of children's internet use and safety in Europe, but for this segmentation to be meaningful and useful, the selection of characteristics that goes into this clustering of countries is very important. At an earlier stage, the EU Kids Online project proposed a simple and easy to understand classification of countries in terms of higher and lower risk and higher or lower use.

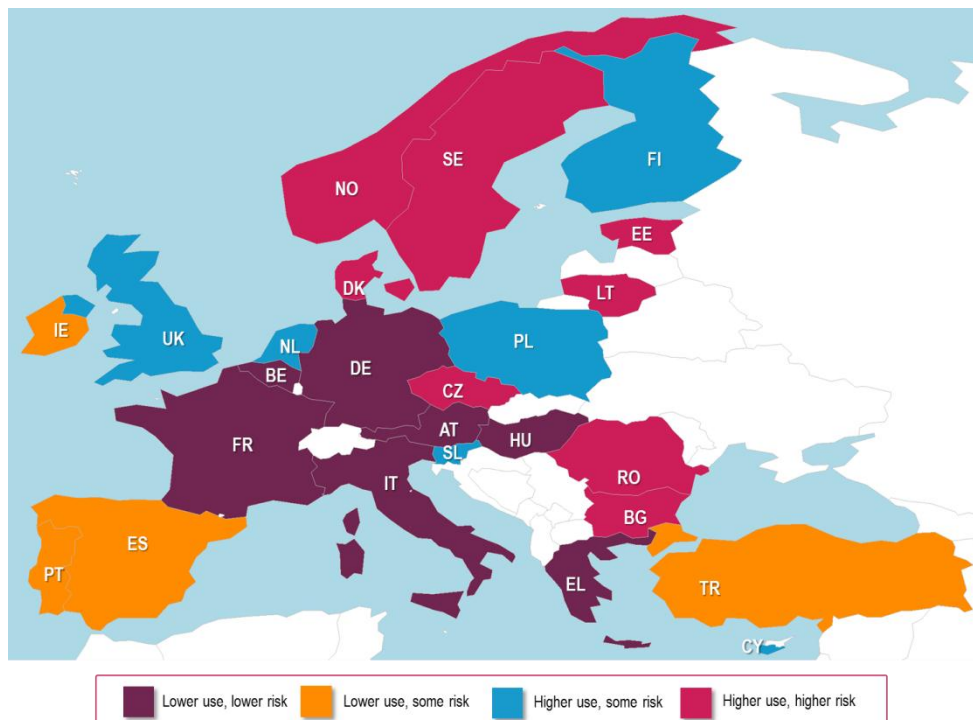
The original classification (see Figure 1) was based on just two indicators, the percentage of young people who used the internet daily and the number of risks they ran. While easy to grasp and relatively intuitive, it did not give such a detailed insight into how children in different countries were using the internet. It missed out on other elements that were measured by EU Kids Online and which are a key part of the evidence base for stakeholders: the harm that children suffered from the risks encountered and the way in which parents reacted to this.

In this report we analyse the EU Kids Online data to come to a new classification of countries which is slightly more complex and

paints a richer picture than the older model. This report uses the data in the survey on the range of opportunities young people encounter online, the types of risks that young people experience online and whether they subsequently suffer harm from these and, last

but definitely not least, the strategies that parents employ across Europe to safeguard their children's well-being online.

Figure 1: First EU Kids Online country classification for use and risk



Based on Lobe et al (2011). *Cross-national comparisons of risks and safety on the internet*. www.EUKidsOnline.net

This report is divided into four sections: (1) clustering of online opportunities; (2) clustering of risk and harm; (3) clustering of parental mediation strategies; and (4) overall classification of countries based on the opportunities, risk and harm, and mediation dimensions. The first three sections have the same structure:

- First, we group children based on the range of opportunities (Section 1), risks and harm (Section 2) and parental

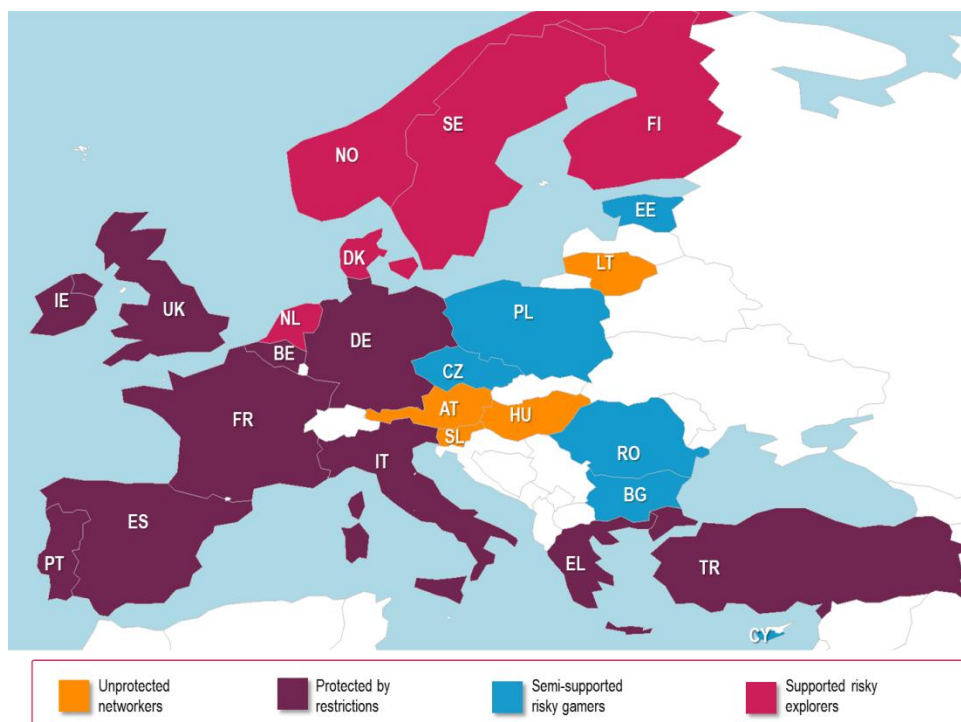
mediation strategies (Section 3) that they encounter.

- Second, we describe the characteristics of these groups of children in Europe including their age, gender and the educational level of their parents.
- Third, we cluster the European countries based on the distribution of these groups of children in each of the European countries.
- Fourth, we describe the characteristics of these clusters of countries.

Section 4 uses the distribution of the groups of children in each of the European countries across all three indicators (opportunities, risk and harm, and parental mediation) to come to

an overall classification of European countries.

Figure 2: New country classification of online opportunities, risk, harm, and parental mediation



This approach allows us to show how European children cluster in terms of opportunity, risk and harm, and parental mediation characteristics, and how these clusters or groups of children are distributed differently over the different countries, leading to a classification of countries based on the presence of different types of children and their home environments. We thus developed a more sophisticated approach to classifying countries (see Figure 2) than the higher/lower use, higher/lower risk classification that we had before.

Since there was no clear theoretical framework that helped us predict which countries were likely to cluster together in which way across the three dimensions of opportunities, risk and harm, and mediation, this short report is by necessity more descriptive. In an ad hoc fashion we do try to explain why some countries might differ on these dimensions and what might explain the overall clustering when the three dimensions are clustered together. The report ends with recommendations for stakeholders based on the classifications presented in the four sections.

NOTE ON METHODOLOGY

All sections use the following statistical techniques. First, scales were created in relation to the topic of the particular section. A short description is given in each section of these scales and how they were created. Then cluster analyses were used to group children according to the scores on these scales. Subsequently, the proportion of children in each group was calculated for the different countries. These proportions were used in a cluster analysis in each section that led to a classification of countries for each section. The final step (Section 4) used a K-

means cluster analysis on the 25 countries based on the proportion of children in each group per country. Ward's method with Squared Euclidean Distance was used for this section's clustering.

In the report Ns are for the total sample, weighted by overall weight. Multi-variate analyses were performed without weights.

(For more detailed information, see the [Methodological Appendix](#).)

OPPORTUNITIES

Indicators

We start the classification of countries in this report with a more in-depth look at what lies behind the earlier established differences in use (see Figure 1). One main aim of the EU Kids Online project was to understand how opportunities and risks relate to each other. To do this it is important to go beyond quantitative measures of use or take-up of opportunities such as frequency or duration, and come to a definition that incorporates an understanding of varieties of internet use. In examining cross-national patterns it is possible to look at which types of activities are taken up by certain children in specific countries and which other types of activities might be more extensively engaged with by others in other countries. This approach incorporates an idea of quality as well as quantity of use.

The indicators for children's online opportunities assessed in the EU Kids Online survey include *duration of use*. This indicator provides plausible information on the quantitative presence of the internet in young people's everyday lives. It reflects the temporal resources young people devote to online activities and defines the time frame for more or less opportunities. To an extent, this indicator reflects young people's interests and needs. Those who expect more gratification and more opportunities from using the internet will spend more time on it, making these indicators plausible predictors of the importance of the internet in everyday life (Livingstone & Helsper, 2010). The breadth of activities that the young people undertake is regarded as a strong

indicator of patterns of online usage; therefore, the number of activities that children undertake (out of 17 measured) was also included in the analyses presented here.

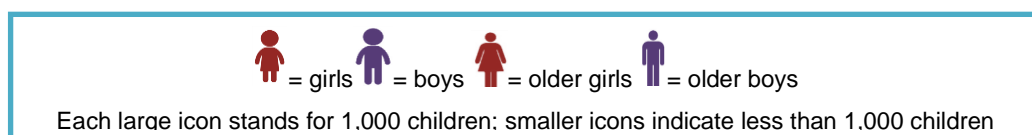
More was needed for an in-depth understanding of how countries cluster beyond these more quantitative indicators of opportunities (Hasebrink, 2012). Therefore, we conducted a factor analysis of the 17 activities mentioned earlier. These were assessed in the survey through the options 'never' (0) to 'almost every day' (4). To the standard 17 indicators for online activities, we added two aspects of online behaviour that seemed particularly important: having an own profile on a social networking site (0 = no profile, 1 = one profile, 2 = more than one profile) and a range of five other activities that are related to contacting or being contacted by others online (0–5 activities score possible). The factor analysis led to the following classification of activities.

- **Factor 1 ('Communication')**: visiting social networking profiles is the marker variable and the factor includes several activities that are mainly communicative. These activities are closely related to peer-to-peer communication.
- **Factor 2 ('Creativity')**: although the loadings are rather moderate, all activities involve some degree of creativity or productivity.
- **Factor 3 ('Gaming')**: this factor clearly represents gaming and activities linked to it.
- **Factor 4 ('Learning')**: the main variable is using the internet for schoolwork, but also includes reading or watching news on the internet.

Opportunities: Groups of children

Duration of use, range of activities and the above four factors were subjected to cluster

centre analyses and a solution with six clusters was selected which groups children clearly into different types of users.



Restricted learners (N=7,175)

Children in this group are characterised by a small amount of online use and a small range of activities. Participation in all activities is infrequent, with learning activities the most frequent. This is the youngest of all of the groups.



Young networkers (N=3,036)

Children in this group have moderately higher values for all activities with remarkable exceptions for the learning activities. Communication and network activities are particularly popular. There are proportionally more girls in this group than in the others.



Moderates (N=5,904)

This group undertakes a wider range of activities than in the young networkers cluster; some activities are more integrated into the group's everyday practices, particularly learning activities. Communication and network

activities are less often taken up than the other activities.



All round explorers (N=2,732)

This group spends almost two hours per day on the internet and has the biggest range of activities and highest frequency of online activities. The least popular, creative activities are the most popular in this group. Boys are overrepresented in this group.



Intensive gamers (N=2,729)

This group, with proportionally more boys, has the longest duration of daily online use (three hours per day) and a smaller range of activities than those in the all-round explorer group but still above the overall average. Gaming activities have the highest values among all the groups. Learning activities score relatively low as well as creative activities.



Experienced networkers (N=3,564)

This group uses the internet slightly more frequently and for a wider range of activities

than the average user. The most obvious characteristic is an almost complete absence of gaming activities. Other opportunities are taken up almost as frequently as in the all-round explorers group; communication and network activities are especially popular. There are proportionally more girls in this group which is also the oldest on average of the different groups of children.

The group descriptions reveal two general findings. On the one hand, they support 'the more, the more...' rule, according to which time spent online, range of activities and engagement in more specific activities are positively correlated. This is the case for the *restricted learners* whose lower frequencies of use coincide with a narrower range of activities engaged in and for the *all-round explorers* who engage frequently and with a large range of activities. This corresponds with the idea that there is a ladder of opportunities whereby activities are added at every step of increased experience with the internet, and justifies the approach taken in the first country classification, whereby the average level of frequency of use was taken as an indicator of higher or lower use and used to group countries. On the other hand, the groups of children arrived at through cluster analysis show that patterns of use do not completely follow this rule. *Young networkers* and *moderates* are the same age and show almost the same duration of use, but *moderates* take up a range of opportunities while *young networkers* are more limited in the range of activities. *Intensive gamers* spend by far the

longest time online but engage in only a moderate range of activities.

Opportunities: Classification of countries

The distribution of the six groups of children in each country was used to create a country classification based on opportunities. The proportion of children in each group is shown in Table 1.

Table 1 shows which countries have the highest and lowest percentages of children in certain user groups. Turkey has the highest percentage of children in the *restricted learners* group (45%) and the lowest number in the *experienced networkers* group (5%). Sweden has the lowest percentage of children in the *restricted learners* group (9%) and the *moderates* user group (8%). In Ireland just under half of the children fall in the *young networkers* group (45%) and only 4% in the *intensive gamers* group, the lowest percentage of children in that group in all countries. France, on the other hand, has the lowest percentage of *young networkers* (7%). Poland leads in terms of the proportion of children in the *moderates* group (38%), positioning it at the opposite end of the spectrum of Sweden. Sweden has the largest (17%) and Spain and Ireland the lowest proportion of children (6%) in the *all-round explorers* group. Bulgaria and Cyprus join Lithuania with high proportions of children in the *intensive gamers* group (20% each), while Norway leads in terms of *experienced networkers* (28% of children fall in that group), while Greece, like Turkey, has 5% in this group.

Table 1: Percentages of children in each group per country

	Restricted learners	Young networkers	Moderates	All round explorers	Intensive gamers	Experienced networkers
Austria	20	28	15	15	7	15
Belgium	19	18	25	15	6	16
Bulgaria	20	16	22	11	20	11
Cyprus	18	13	28	14	20	7
Czech Republic	16	11	28	13	19	12
Denmark	14	19	25	9	19	13
Estonia	14	11	30	12	19	15
Finland	19	19	23	10	11	19
France	34	7	17	15	5	22
Germany	35	12	21	10	8	14
Greece	29	19	27	9	12	5
Hungary	16	28	24	14	10	8
Ireland	24	45	13	6	4	9
Italy	33	10	27	10	8	12
Lithuania	10	16	24	16	20	14
Netherlands	14	20	28	9	11	19
Norway	14	18	11	14	15	28
Poland	20	13	38	7	13	9
Portugal	29	8	36	11	8	8
Romania	26	9	28	11	19	7
Spain	29	14	35	6	5	12
Sweden	9	27	8	17	14	26
Slovenia	12	31	18	11	12	16
Turkey	45	10	23	11	6	5
UK	25	12	20	14	15	15
All countries	22	17	24	12	12	13

Note: **Red bold** indicates the countries with the lowest proportions of children in the group and **blue bold** indicates the countries with the highest proportions of children in the group.

To come to a more informative classification of the countries based on the data presented in Table 1, the following procedure was used: for each country the proportion of children in each group was calculated, and this data was used to run a hierarchical cluster analysis with countries as cases. This procedure identifies groups of countries that are quite similar to each other and quite different to the other

groups. This means that there is still considerable variety within the clusters as regards the presence of groups of children in each country.

A five-cluster solution was decided on after close examination of the data (see Figure 3). While countries cluster together in terms of the opportunities groups of children engage with,

the path taken by countries to end up in a particular opportunities cluster will vary and might be based in different diffusion and policy histories.

Young networkers cluster (N=4) (Austria, Hungary, Ireland and Slovenia)

The countries in this cluster have relatively the largest representation of children in the *young networkers* group (33%, ranging from 28% in Austria and Hungary to 45% in Ireland); *intensive gamers* (8%) are underrepresented in comparison with the other clusters.

Diversity cluster (N=8) (Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Lithuania and the Netherlands)

This cluster of countries equally represents the whole range of groups identified with only the *restricted learners* group underrepresented (16%). In this cluster the proportion of children in all other five groups is close to the average for all countries.

Moderates cluster (N=6) (Cyprus, Greece, Poland, Portugal, Romania and Spain)

Almost one third (32%) of the children in these six countries belongs to the *moderates* user group; this is above the average for all countries and higher than in other clusters, while the more advanced patterns of use – all-round explorers (10%) and *experienced networkers* (8%) – are underrepresented in comparison to the other clusters.

Restricted learners cluster (N=5) (Germany, France, Italy, Turkey and the UK)

The dominant group of children in this cluster of countries are the *restricted learners* (34%). Children in this cluster of countries are least likely to belong to the *young networkers* (10%) and the *intensive gamers* (8%) groups.

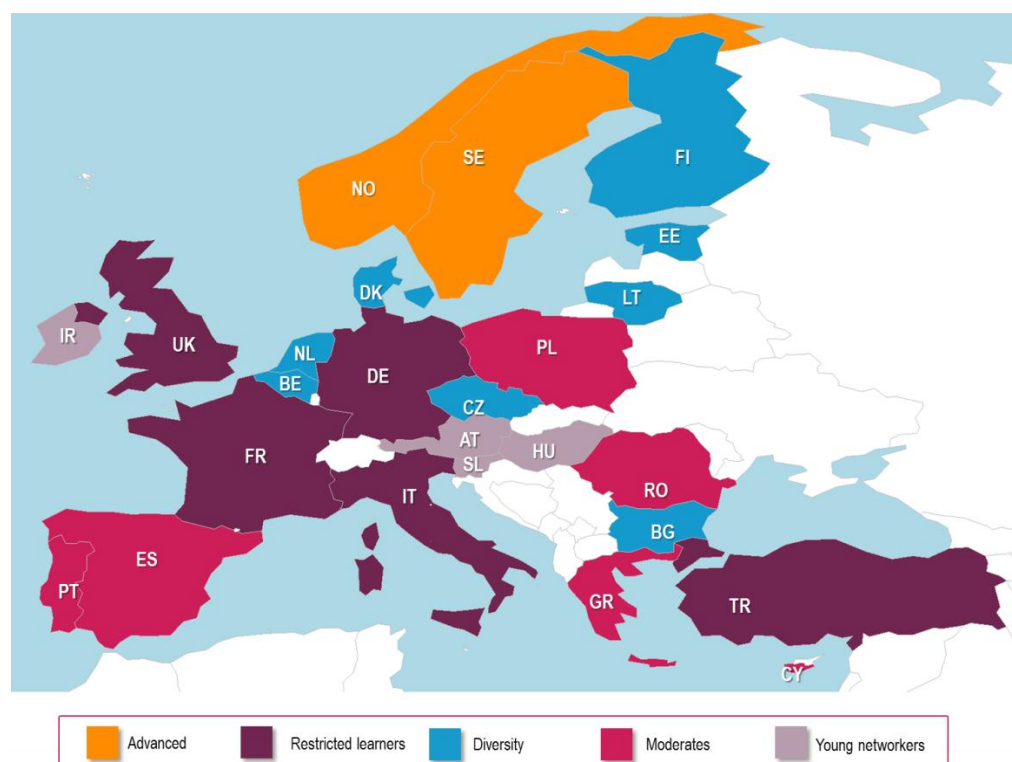
Advanced cluster (N=2) (Norway and Sweden)

This two-country cluster has by far the highest representation of the more ‘advanced use’ groups of children, the *all-round explorers* (15%) and particularly the *experienced networkers* (27%). In addition, the *young networkers* (22%) group is overrepresented. Consequently these countries have on average the lowest percentage of restricted learners (12%) and moderates (9%).

The new classification presented in Figure 3 adds understanding to the previous one (see Figure 1) and gives a more detailed image of the opportunities engaged with by groups of children in the different countries.

For example, Norway and Sweden are clearly ‘higher use’, falling in this type of category in both the first and the new classifications. The new classification in Figure 3 shows that in this case they are especially made up of children who are expert in communication and networking. The children in these countries are not only intensive users of the internet but also extensive users.

Figure 3: Map of opportunities country clusters



Eastern and North Eastern European countries that were classified as 'higher use' in the first classification (Czech Republic, Estonia, Lithuania and Finland) as well as the Netherlands and Denmark can be distinguished from these two Scandinavian countries in the following way: they belong to the diversity cluster which means that while there are indeed quite a few children that belong to expert and all-round user groups, they also have a reasonable representation of *restricted learners* and *moderates*. In other words, the landscape of children's engagement with opportunities is more varied.

Poland and Romania previously also classified as 'higher use' can now be looked at differently: while there might be a relatively high frequency of use, the predominant pattern is actually a

group of children that is *moderate* in the range of opportunities that it engages with.

The UK, previously also classified as higher use, is an interesting case where the group of children who are *restricted learners* has a high representation which takes it out of the group with purely higher users and qualifies it as part of a cluster of countries where most children make only limited use of the wider range of activities and focus in this more limited use on practical applications, such as learning and information seeking.

France, Italy, Germany and Turkey also fall in the *restricted learners* cluster that corresponds more closely to their earlier classification of lower use. Hungary and Austria previously classified as lower use fall in the young

networkers cluster, suggesting that the lower use classification in the previous setting was partly determined by there being more younger and less experienced users in these countries.

Belgium, previously also classified as lower use, falls in the *diversity* cluster in the new classification. This might indicate that quantity is not the only thing that should be taken into account; while the average child in Belgium might be an infrequent user, this does not reflect that the country contains children from all the different types of groups. In other words, countries in the diversity cluster are made up of a variety of groups of children, each of which takes up different opportunities but might, on average, have individual children whose use is not broad or frequent.

Finally, Spain and Portugal were also both classified as lower use in the previous classification and have, in the new classification, become part of the group of the *moderates* cluster of countries. The low presence of the group of children with a high level of engagement places them in both classifications in a cluster of countries where use is infrequent and not as broad as in other clusters of countries.

Opportunities: Recommendations

Internet use is on the rise in all European countries, both in terms of number of online participants as well as the amount and diversity of use. In this environment, a closer inspection of patterns of use across European countries is informative to identify where children seem to be missing out on internet-related opportunities. The analysis in this section shows that the patterns of use greatly vary across European

countries, but also that a clustering of countries based on similar practices is still possible. This clustering is largely detached from geographical proximity and illustrates specific characteristics of children's internet use within countries and the resemblance with specific other countries.

Stakeholders in these countries should recognise this variety in designing initiatives around take-up of opportunities for children. Here we give tentative recommendations for countries in different clusters; these should be contextualised within specific local and national policy and diffusion characteristics.

Diversity cluster (Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, Lithuania and the Netherlands)

These countries with a wide range of different groups of children (i.e., the diversity cluster) could think of a learning from peers strategy whereby the more expert and widely engaged groups of children serve as champions or buddies for those who are less broadly engaged.

Restricted learners (Germany, France, Italy, Turkey and the UK) and **moderates** clusters (Cyprus, Greece, Spain, Poland, Portugal and Romania)

The strategy of peer-to-peer learning might be less effective in countries where the majority of children fall into groups that have low, infrequent or narrow use. In the restricted learners cluster children engage with some practical school-related activities but do not take advantage of the breadth of opportunities on offer. Here a policy, education or public awareness-driven intervention might be more suited since there is less opportunity for

learning from peers. These strategies could consider relatively basic awareness-raising campaigns around the opportunities that are already taken up, as well as stimulating interest for other, more interactive, creative and reflexive activities than those that the children are already engaged in.

Young networkers (Austria, Hungary, Ireland and Slovenia) and **advanced** clusters (Norway and Sweden)

These clusters of countries are on the opposite end of the spectrum from the other clusters in terms of use; here most children fall into groups in which there is high engagement with a narrower range of activities. However, there might be a similar approach to that recommended in the restricted learners cluster, exposing children to the other opportunities that are available and broadening their engagement through policy, education or social marketing campaigns. In these countries, these strategies should cater to the young people's greater experience and probably engage at a higher level of sophistication since these young people are already relative experts in specific areas of use.

RISK AND HARM

Indicators

One of the main aims of the EU Kids Online project was to go beyond looking at the activities that children engage in online and adult definitions of those as risky. It was important to look at the results of children's engagement with these types of activities and to understand whether any harm was caused by undertaking what might be labelled 'risky' activities (Livingstone et al, 2011). Previous research has shown that opportunities and risks are clearly related, that those children who spend more time online and take up a wider range of online activities are also more likely to come across risky online situations (Livingstone & Helsper, 2010). If risks actually turn into negative experiences or harm, it depends on individual and social factors such as self-confidence, skills and mediation (Smahel et al, 2013; Vandoninck et al, 2013). These differences between children in the number of risks they encounter and the extent to which they experience harm is the starting point of the next step of our analysis that aims at a more nuanced understanding of how countries can be classified in terms of their different types of risk and harm landscapes.

Here we used a number of indicators from the EU Kids Online questionnaire to go beyond a simple classification of children as experiencing less or more risk by distinguishing different types of risks and including in this an estimate of the harm that comes from these different types of risk. Since the data were nested (i.e., only children who experienced a risk could experience the related harm) it was necessary

to create separate scales for each of the three risky activities that children were asked about: *seeing sexual images*, *meeting strangers* and *bullying*. Since sexting, the fourth risk systematically described in the full report (Livingstone et al, 2011), was not asked of 9- to 10-year-olds, it was left out of the estimations.

The newly constructed scales ran from 0–6 – from no experience of the risk to the child experiencing the risk online and being very upset. The rest of the scale was divided as follows: 1 = risk offline but not online (not used in analysis); 2 = risk online but not bothered; 3 = risk and bothered but not upset; 4 = risk and a bit upset; 5 = risk and fairly upset. Since the questions varied across risk the scales, for bullying '2' marked children who indicated being bullied but did not respond to the subsequent question on being upset and '3' marked children who answered that question and indicated not being upset. For meeting strangers, '1' indicated that they had made friends online but did not meet them offline, '2' that they had met them offline but that they were not bothered, and the rest replicates the above scale.

A scale that summed the number of risks related to exposing personal data and interaction risks was also included. This *contact risk scale* ranged from 0–5 risks encountered. No follow-up questions about harm were asked for this scale.

A two-step cluster analysis procedure appropriate for combining scale and interval variables was used to group the children. This

included only children who had experienced at least one of the three main risks online (i.e., scores 2–6 on those scales). This approach created a de facto cluster of children who had not encountered any risk online (N=19,420). Across all countries 5,722 children had experienced one or more risks online and 519 encountered all the risks. When we included this cluster of those who did not experience any risk, just two groups of children appeared: those who had not experienced any risks and those who had (very few children had experienced harm). While this is a reflection of a low risk and harm reality, it would lead to a similar classification to the one presented in Figure 1 which does not allow for clustering of countries based on the *different types of risks*

and harm experienced by children; we therefore only clustered those children who had encountered at least one risk online.

Risk and Harm: groups of children

When using the indicators described earlier, a cluster analysis revealed a solution identifying three groups of children that fit the data. The three individual risk scales were more influential in determining the clusters than the contact risk scale. Overall experiences of risk and especially harm were low and thus higher risk and harm in this classification is relative, that is, in comparison to the average and other groups. The three groups can be described as follows:



Sexual risk and harm group (N=2,299)

These children experience relatively high sexual images risks and higher levels of harm for this risk. While they experience bullying and have met people offline, they experience only moderate levels of harm (compared to children in the higher risk/harm and contact risk clusters). They also have the lowest score on the contact risk scale. This group of children do not stand out in terms of their age but boys are more likely to fall into this group and their parents are more likely to have tertiary education than those in any of the other groups.



Higher risk /harm group (N=1,250)

These children experience relatively higher levels of risk across all risk categories except the overall contact risk scale. They are especially more likely to experience higher levels of harm from online bullying and meeting strangers offline. This group of children does not stand out in terms of their age but girls are more likely to belong to this than to any other group, and their parents are more likely to have secondary education than those of other groups.



Contact risks group (N=2,172)

These older children (average age = 15) are most likely to experience harm from meeting people offline and score highest on the overall contact risk scale, related to giving out personal information. Boys are more likely to fall in this group than girls and the distribution of parental education follows an average pattern.



No online risk group (N=19,420)

This group consists of younger children (average age = 12 years) who did not encounter any risk online and have thus not experienced any harm. Girls and boys are just as likely to be part of this group and, in comparison to other groups, parental education levels are lower.

The grouping of children shows that there is no clear linear trend from no risk and harm to higher risk and harm. Children who are likely to encounter one particular type of risk are not necessarily more likely to encounter other types of risk and harm. While there was one group of children (i.e., the higher risk/harm group) who experienced risks across the board, there were also two distinct groups of children who experienced one type of risk and harm but were not exposed to risk or harm from other types of activities. For example, older children in the contact risk group seem to avoid other types of risks and have overall lower levels of harm. The children in the sexual risks group, while not

managing to avoid other risks, experience little harm from other online risks.

Risk and Harm: Classification of countries

The distribution of the children in each group was used to create a country classification based on risk and harm. Table 2 shows what proportion of children in each country falls within the different groups identified in the previous section.

Table 2 shows that Italy had the highest percentage of children in the no risk group of children (90%), while Estonia had the lowest percentage (59%) of children in that group. Norway had the highest (20%) and Germany the lowest percentage (4%) of children in the sexual risks group. Romania had the highest percentage (12%) of children in the *higher risk/harm* group while Portugal and Italy had the lowest percentage (2%) of children in that group. Lithuania had the highest percentage (22%) of children in the *contact risks* group, placing it at the opposite end of the spectrum from Italy and Turkey, which had only 4% of children in that group.

To come to a more informative classification of countries based on the distribution of children over these groups, a cluster analysis was conducted following a two-step clustering procedure that allows for the inclusion of categorical and interval variables. The *no risk* group was left out of the analysis to make the classification more informative for describing the patterns of risk and harm across countries.

This procedure identifies groups of countries that are quite similar to each other and quite different to the other groups. This means that

there is still considerable variety within the clusters as regards the presence of groups of children in each country. Thus, while countries cluster together in terms of the risks and harm groups of children encounter, the historical

routes that lead to this particular risk and harm classification will vary for different countries within the same cluster.

Table 1: Percentages of children in each group per country

	No risk	Sexual risks	Higher risk and harm	Contact risks
Austria	72	9	6	13
Belgium	71	12	5	11
Bulgaria	73	11	5	11
Cyprus	80	10	4	6
Czech Republic	65	13	6	16
Denmark	65	16	10	10
Estonia	59	13	10	18
Finland	68	17	4	11
France	70	13	6	11
Germany	79	4	4	13
Greece	81	8	3	8
Hungary	80	9	5	7
Ireland	83	8	4	5
Italy	90	5	2	4
Lithuania	63	12	4	22
Netherlands	72	18	3	6
Norway	61	20	6	12
Poland	78	10	4	8
Portugal	81	9	2	8
Romania	67	8	12	13
Spain	81	9	4	6
Sweden	64	11	9	16
Slovenia	67	14	4	14
Turkey	84	9	3	4
UK	79	7	8	6
EU Average	73	11	5	10

Note: **Red bold** indicates the countries with the lowest proportions of children in the group and **blue bold** indicates the countries with the highest proportions of children in the group.

The three clusters of countries can be described as follows (see Figure 4):

Higher risk/harm cluster (N=10) (Austria, Belgium, Bulgaria, Czech Republic, Estonia,

France, Lithuania, Romania, Slovenia, and Sweden)

In this cluster there are relatively high percentages of children in each of the risk and

harm groups. They have the highest proportion of children in the *higher risk/harm* group (7%) and in the *contact risks* group (15%); 12% of children in these countries fall into the *sexual risks* group, which is second only to the sexual risks cluster of countries.

Lower risk/harm cluster (N=11) (Cyprus, Germany, Greece, Hungary, Ireland, Italy, Poland, Portugal, Spain, Turkey and the UK)

In this cluster of countries there is the lowest proportion of children in each of the risk and harm clusters: 8% of children fall in the sexual

risks group, 4% in the *higher risk/harm* group and 7% in the *contact risks* group.

Sexual risks cluster (N=4) (Denmark, Finland, the Netherlands and Norway)

The countries in this cluster are mainly characterised by a high proportion of children in the *sexual risks* group (18%); the proportion of children in the *higher risk/harm* group is the second highest (6%) among all the countries, and the proportion of children in the *contact risks* group is relatively low (10%).

Figure 4: Map of risk and harm country clusters

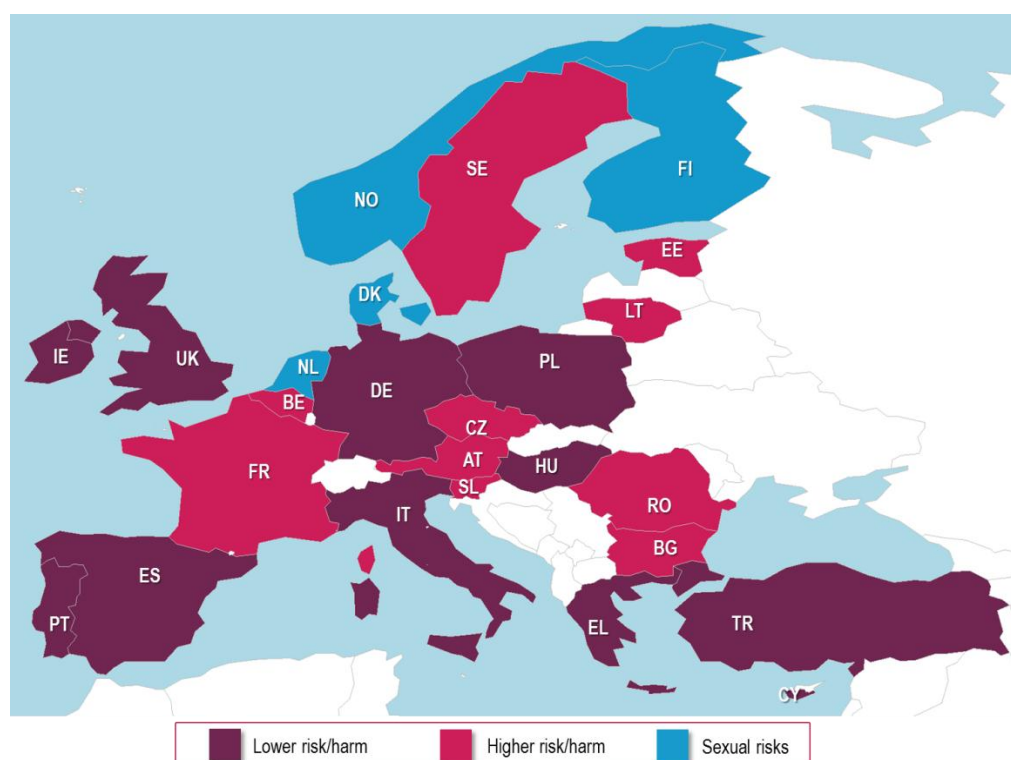


Figure 4 shows a slightly different classification for the countries based on risk and harm than the first country classification presented at the beginning of this report. A distinction can be made especially among those countries that

were considered as higher risk and some risk in the first classification (see Figure 1).

In the previous classification, Denmark and Norway were classified as higher risk. In the new classification, Norway and Denmark are

part of a small cluster of countries that has most children in the sexual risks group and has thus been labelled the sexual risks cluster. The Netherlands and Finland, previously classified as some risk, make up the other two countries of this small cluster of four countries where the largest proportion of children fall into the sexual risks group.

In the new classification, the remaining Scandinavian country, Sweden (previously classified as higher risk), falls into a relatively large cluster of countries labelled the higher risk/harm cluster. The new higher risk/harm classification in Figure 4 offers additional information in comparison to the higher risk classification presented in Figure 1.

In countries in the higher risk/harm cluster the largest number of children does indeed fall in the higher risk/harm group with relatively varied risks and associated harm. In addition, these countries have a high proportion of children that run mostly contact risks. While there are fewer children in the sexual risks group than in the countries of the sexual risks cluster, the proportion of children in that group is still relatively high. The Eastern European countries, Estonia, Lithuania, the Czech Republic, Bulgaria and Romania, also fall in the higher risk/harm cluster of countries in the new classification. Poland, and Slovenia, previously classified as some risk (see Figure 1), are now also part of this higher risk/harm cluster.

Most interestingly Belgium, France and Austria, previously classified as lower risk, fall in the higher risk/harm cluster under the new classification (see Figure 4). This can be explained if a single child in this country does not experience a great number of risks, but

many children in these countries belong to a group of children that experiences relatively great harm from *bullying or runs contact or sexual* risks. In other words, it is probably not quantity or breadth but quality or type of risk encountered that makes the difference here.

The other countries that were previously classified as lower or some risk remain in a similar category in the new classification. The UK, Turkey, Spain, Portugal and Poland were all classified as some risk and fall in the cluster of lower risk countries in the new classification. While there are still some children that fall into the *sexual, contact and higher risk/harm* groups, these are relatively low in comparison to the other clusters of countries. Ireland, Germany, Italy, Hungary and Greece were all classified as lower risk in the previous classification and remained in the lower risk/harm cluster in the new classification.

Risk and Harm: Recommendations

Countries looking to learn from the situation in other countries would be wise to pay attention not only to the quantity but also the quality of the risks that different groups of children encounter in these countries.

There are qualitative differences between countries in terms of the range and type of risks that children experience which lead to a different classification of countries than when only looking at quantity. Therefore, when aiming to build up a strategy to counter risk, taking the countries that are most suitable for comparison are probably not those whose children encounter the same quantity of risks but rather similar types of risks and harm. This leads to the following tentative

recommendations for specific clusters of countries, which should be contextualised within specific local and national policy and diffusion characteristics.

Higher risk/harm cluster (Austria, Belgium, Bulgaria, France, Czech Republic, Estonia, Lithuania, Romania, Slovenia and Sweden)

This is a large cluster of higher risk and harm countries in which children fall into a variety of different groups that encounter specific risks. In this cluster of countries, campaigns could be built for these different groups of children as a one size fits all strategy would likely be ineffective in reaching all of them. Messages about generalised risk and harm might reach children who are part of the higher risk/harm group in these countries, but might seem irrelevant to the also relatively large proportion of children who encounter mostly sexual risks. An understanding of which children are most likely to fall into which risk/harm groups, based on an understanding of the national context, is essential to be able to offer these differentiated, targeted interventions and engage parents and children.

Sexual risks cluster (Denmark, Finland, the Netherlands and Norway)

It is not necessarily the case that the groups of children that run one risk are also more likely to run other risks. In this cluster of countries, most children belong to a group that experiences mainly sexual risks and are unlikely to encounter other risks or harm. For these countries, single-issue campaigns focusing on sexual risks are possibly more effective than general awareness-raising campaigns against more general internet risks. In these countries in particular, general campaigns might scare

most children, who in general avoid broader risks or, on the contrary, risk children ignoring these campaigns because they seem irrelevant to them.

Lower risk/harm cluster (Cyprus, Germany, Greece, Hungary, Ireland, Italy, Poland, Portugal, Spain, Turkey and the UK)

While the average child in these countries might fall into a group that experiences lower risk or harm, this does not mean that there are no children who encounter risk or harm in this cluster of countries. In these countries in particular, vulnerable children are likely to be isolated since their experiences differ from that of the majority. In these countries, schools, parents, counsellors and organisations that interact with vulnerable children are likely to be the best route for support. Individual adults and peers are likely to be more effective here than general campaigns since they will be more aware of the child's individual circumstances and can act to prevent the risks and online opportunities these children encounter leading to harm for the young person. Linking these findings to the previous section it should be noted that in these countries children also tend to be less broadly engaged with the opportunities the digital world offers, which indicates that there is a negative flip side to lower risks.

PARENTAL MEDIATION

Indicators

Looking at the opportunities and risks that children encounter online is obviously useful to understand how the situation in different countries can be compared. However, this has to be contextualised within the children's social environment, and one way of doing this is to look at whether parents react differently to their children's internet use across countries. Parental mediation has always been considered an important factor in relation to children's media use, and there is a well-developed field of thinking about the different types of parenting and how they might be related to different types of use (Livingstone & Helsper, 2008). Several papers have been written based on the EU Kids Online data about parental mediation and its relation to children's internet use, especially risk taking of children (e.g. Dürager & Livingstone, 2012; Kalmus et al, in press; Kirwil, 2009; Livingstone & Haddon, 2008; Paus-Hasebrink et al, 2012; Sonck et al, 2012).

This section looks in more detail at how these different types of parenting are distributed across Europe. A distinctive feature of the EU Kids Online survey is that it asked a number of questions about several types of parental mediation. Furthermore, matched questions were asked of the child (CQ) and the parent (PQ) most involved in the child's internet use. Three compound scales of parental mediation were created, based on nine original mediation scales asked of all children:

- *Active mediation* (ranging from 0–22). The items on this scale enquired about active mediation of internet use (CQ + PQ) and active mediation of internet safety (CQ + PQ).
- *Restrictive mediation* (ranging from 0–12). The items in this scale looked at restrictive mediation practices (CQ + PQ).
- *Monitoring and technical restrictions* (ranging from 0–12). The items on this scale measured parental monitoring (CQ + PQ) and technical restrictions (PQ) put in place by parents.

Households where monitoring or technical restrictions were not possible (due to the child not using the internet at home) were assigned the value of zero on the monitoring and technical restrictions scales. For those who had answered 'Don't know', the average values were used to replace missing data.

Parental mediation: Groups of children

While many parents are rather passive in mediating their children's online behaviour, others are involved in their online participation and mediate actively. These parents differ to a great extent in how often and in what ways they interact with their children. A cluster analysis of children examined how children grouped together based on their parents' mediation styles, and found four groups of children.

The four groups can be labelled as follows, where parental mediation levels are relative, that is, higher or lower in comparison to other groups of children:



Each large icon stands for 1000 children, smaller icons indicate less than 1000 children



All rounders (N=5,583)

Parents of this group of relatively young children (average age = 12) practise all three types of mediation above the overall sample average; the levels of monitoring and technical restrictions and active mediation are particularly high. The parents in this group are the most likely to have secondary levels of education and the proportion of parents with primary education only is the lowest in this group. In this, like in most other groups, there are a similar number of boys and girls.



Active mediation preferred (N=7,320)

Parents of the relatively older children (average age = 14) in this group prefer using active mediation (though to a somewhat lesser extent than all-rounders), while practising the other two types of mediation, especially restrictive mediation, less than the sample average. The parents of the children in this group are more likely than those in the other groups to have tertiary levels of education.



Restrictive mediation preferred (N=6,350)

Parents of these younger children (average age = 11) clearly prefer setting rules and restrictions

to the child's internet use. They also engage in active mediation, although less than all-rounders and parents preferring active mediation, and are clearly less in favour of monitoring and technical restrictions. The parents of the children in this group are also relatively more likely to have primary education or less.



Passive (N=5,889)

Parents of this group of older children (average age = 14) practise all three types of mediation below the overall sample average; the levels of active mediation and monitoring and technical restrictions are particularly low. The children in this group are more likely to be boys than girls and their parents are most likely to have primary education.

Only the parents of *all-rounders* apply a broad range of mediation techniques, and in the passive group parents tend to apply a narrow range of mediation techniques, if any. The qualitative differences are apparent in the other two larger groups where parents tend to prioritise one mediation technique over all others. This is particularly true for the *restrictive mediation* group. Those in the *active mediation* group reject the types of mediation most popular in the *restrictive mediation* group, positioning children in these groups on opposite sides of the spectrum. The difference between

these two groups is underlined by differences in age and the parental educational levels of children in these groups; children whose parents are *active mediators* are older and their parents tend to be higher educated, while the reverse is true for children whose parents are *restrictive mediators*.

Parental mediation: Classification of countries

These groups of children with parents that use different mediation types are not equally distributed across different countries. Table 3 shows how the mediation patterns vary across Europe.

Table 3: Percentage of children in each of the parental mediation groups per country

	All-rounders	Active mediation	Restrictive mediation	Passive
Austria	18	20	31	31
Belgium	25	27	25	24
Bulgaria	19	28	23	30
Cyprus	23	37	16	24
Czech Republic	24	39	17	20
Denmark	13	52	12	23
Estonia	21	39	9	31
Finland	19	44	22	15
France	26	21	35	18
Germany	20	15	46	18
Greece	24	19	29	29
Hungary	18	26	25	31
Ireland	30	18	40	12
Italy	27	19	33	21
Lithuania	7	39	9	46
Netherlands	26	45	16	13
Norway	23	51	17	8
Poland	34	34	9	23
Portugal	22	25	26	27
Romania	17	27	23	32
Spain	26	25	28	22
Sweden	22	44	17	17
Slovenia	11	30	18	41
Turkey	16	15	38	30
UK	33	24	26	17
EU average	22	31	24	24

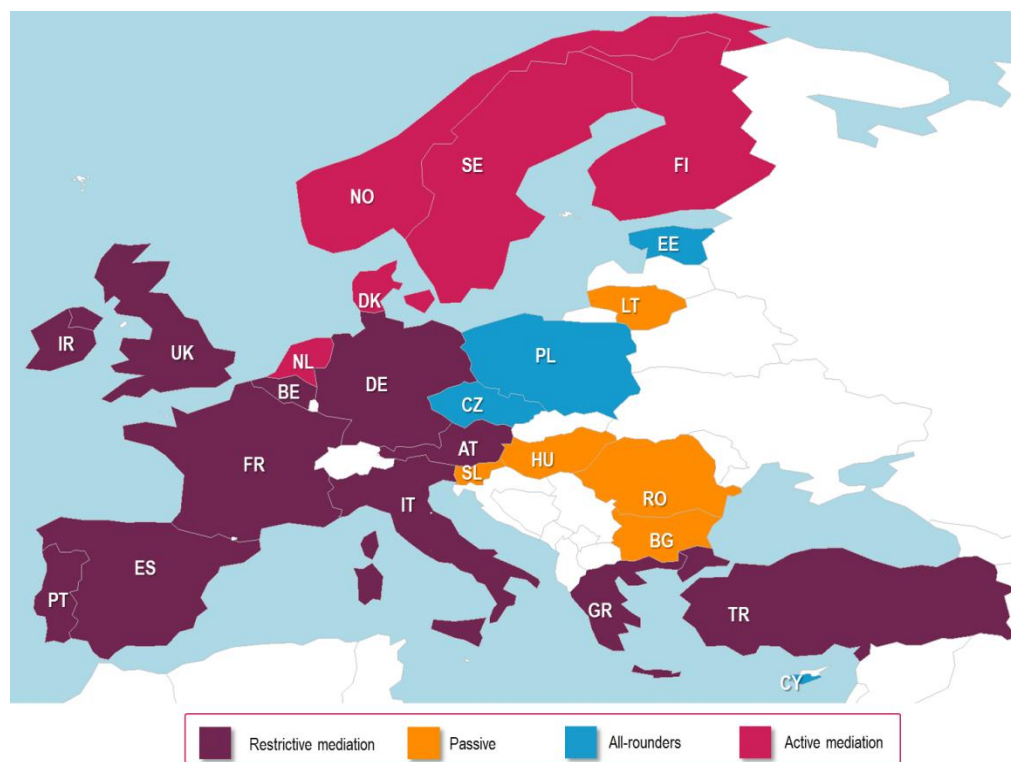
Note: **Red bold** indicates the countries with the lowest proportions of children in the group and **blue bold** indicates the countries with the highest proportions of children in the group.

Table 3 shows that Poland has the largest percentage of children (34%) whose parents apply a wide range of different mediation strategies and the lowest percentage (9%) of children in the group where parents apply mostly restrictive mediation. Lithuania, on the other hand, has the lowest percentage of children in the all-rounders mediation group (7%) but similar to Poland has the lowest percentage (9%) of children in the restrictive mediation group. Germany has the lowest percentage (15%) of children in the group where parents use active mediation and the highest (46%) in the restrictive mediation group. Turkey is also lowest (15%) in the active mediation group and higher than average (38%) in the restrictive mediation group. Denmark, in contrast, is high (52%) in active mediation and low on children (12%) in the restrictive mediation group. Estonia joins

Lithuania and Poland in having the smallest proportion of children (9%) in the restrictive mediation group. Lithuania leads the way in terms of passive mediation, with just under half of the children (46%) falling in that group. This positions it opposite to Norway, where only 8% of children are part of the group where parents mediate passively.

The distribution of the four groups of children was used to create a country classification based on parental mediation through a cluster analysis. While countries cluster together in terms of the parental mediation styles groups of children encounter, the routes that lead to this particular classification based on parents' mediation practices will vary for different countries within the same cluster. This analysis classified countries into four clusters (see Figure 5):

Figure 5: Map of parental mediation country clusters



Restrictive mediation cluster (N=11) (Austria, Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Spain, Turkey and the UK)

In this cluster there is the highest proportion of children in the group whose parents prefer *restrictive mediation* (32%). The percentage of *all-rounders* (24%) is also above the average in this cluster of countries, while the proportion of children in the group whose parents prefer *active mediation* is the lowest (21%).

Passive cluster (N=5) (Bulgaria, Hungary, Lithuania, Romania and Slovenia)

In this cluster of countries there is the highest proportion of children in the group with *passive* parents (36%). The percentages of children in other groups are below average.

All-rounders cluster (N=4) (Cyprus, the Czech Republic, Estonia and Poland)

This is the most heterogeneous cluster of countries with the highest percentage of *all-rounders* (25%) and the second highest proportion of children in the group whose parents prefer *active mediation* (37%). However, the percentage of children in the group with *passive* parents is also above the average in this cluster (25%).

Active mediation cluster (N=5) (Denmark, Finland, Netherlands, Norway and Sweden)

This cluster of countries is characterised by the highest proportion of children in the group whose parents prefer *active mediation* (47%) and below the average percentages of children in all other clusters.

The largest cluster in this classification of countries based on parental mediation of

children's internet use is that of *restrictive mediation* (see Figure 5). Almost all Western, Central and Southern European countries fall into this category. The exception is the Netherlands, which falls in the *active mediation* cluster with the Scandinavian countries. In most Eastern European countries passive mediation is more common which positions them in a different cluster from the Scandinavian countries. However, the Czech Republic, Poland and Estonia have a stronger presence of groups of children whose parents use a range of mediation strategies and have thus been labelled the *all-rounders*. Cyprus also falls within this cluster while its neighbours, Greece and Turkey, are part of the biggest cluster of countries in which the largest number of children is part of the *restrictive mediation* group.

Parental Mediation: Recommendations

From other research we know that the differences and similarities in parental mediation between countries are at least partly based on diffusion rates, parents' online experience and technological opportunities, which in turn are related to national wealth. Furthermore, there are cultural and social differences between countries resulting in differences in parental values and preferred styles of parenting as well as differences in welfare state institutions which regulate female labour force participation and the availability of public childcare facilities (e.g. Kalmus & Roosalu, 2012; Kirwil et al, 2009).

Policy at a national level can contribute to internet safety by building on existing practices. Yet, we need to bear in mind that what is needed in single countries depends on local contexts. This leads to the following recommendations for clusters of countries, which should be contextualised within specific local and national policy and diffusion characteristics:

Passive cluster (Bulgaria, Hungary, Lithuania, Romania and Slovenia)

The majority of children in these five countries have parents who are mostly passive in their mediation. Since these are countries with relatively low diffusion of the internet, these parents might lack either awareness or skills to properly mediate the internet use of their children. E-inclusion strategies to improve online participation and digital skills among parents are appropriate in these countries. Supporting parents with information on, for example, how and when to talk to their children and how to build relationships of mutual trust might give parents more confidence in their mediation strategies.

Restrictive mediation cluster (Austria, Belgium, Germany, Greece, Spain, France, Ireland, Italy, Portugal, Turkey and the UK)

As was the case for opportunities and risks, there are clusters of countries where mediation strategies are relatively homogeneous. In this homogeneous cluster of countries, the majority of children have parents that prefer to either not mediate or to mediate in a restrictive fashion rather than in an active way. These strategies have been considered less effective than others in safeguarding children, and in these countries a single-issue campaign on

promoting more active mediation with very specific advice on how this could be done could be appropriate. It is interesting that varied local policies and diffusion histories are linked to a similarity in the way parents mediate their children's use across these countries.

All-rounders cluster (Cyprus, the Czech Republic, Estonia and Poland)

In this cluster of countries, children come from a wide variety of different groups with parents using a whole range of different mediation strategies. In this cluster there is a great heterogeneity among children's parents. Parents combine, for example, active mediation and restrictive mediation, which means that they might not be sufficiently aware of what each kind of mediation means in terms of the efficiency of their parental effort and, as a consequence, the online safety of their children. Campaigns and initiatives targeted at less knowledgeable parents could therefore be effective. Since there are quite a few children with actively mediating parents, peer learning or parental discussions might be a way forward.

Active mediation cluster (Denmark, Finland, Netherlands, Norway and Sweden)

Active mediation is seen as the ideal by many stakeholders, and this cluster of countries has a majority of children with parents who employ this strategy. However, even in these countries there are considerable numbers of children that have other parental mediation types, and in this case emphasising the best practices undertaken by most parents could help the other parents understand how to help their children.

CLASSIFICATION OF COUNTRIES BASED ON OPPORTUNITIES, RISK, HARM AND PARENTAL MEDIATION

The final step in this report is to bring all the previous classifications together to come to an overall informative classification of countries that includes information on online opportunities, risks, harm and parental mediation in the European countries. To do this we conducted a hierarchical cluster analysis on the 25 countries using the percentage of children in the different opportunities, risk and harm, and mediation groups in each country (see Tables 1, 2 and 3) as the basis for analysis. Each of the resulting clusters describes a combination of the take-up of internet opportunities, risks and harms encountered and parental mediation strategies. This analysis looks at the distribution of groups of children within each country and which combinations of these groups are most likely to be found together in different countries. The resulting combinations seem to indicate that parents mediate more actively when children are more advanced users with a wider range of risks and opportunities involved. The following labels were attached to these clusters:

- *Unprotected networkers*: network opportunities and risks and passive mediation
- *Protected by restrictions*: practical, few opportunities and risks and all-round, restrictive mediation
- *Semi-supported risky gamers*: moderates and intensive gamers, higher risk/harm and all-rounders/active mediation

- *Supported risky explorers*: experienced networkers and sexual risks groups with active mediation

The proportion of children in each opportunities, risk and harm, and parental mediation groups are distributed as follows over the four different clusters of countries (for a detailed description of the presence of clusters per country, see the [‘Individual country clustering’ reports](#)).

Table 4 shows that there is considerable variation in the ways in which the groups of children coincide in the four country clusters. The following, more detailed, description of the country clusters shows that the way in which this distribution of groups of children makes countries cluster together is not always as expected (see also Figure 6). It is important to remember that while countries within each cluster have similar distributions of groups of children with specific opportunities, risk and harm and parental mediation styles, the routes that lead to membership of a particular cluster are likely to have varied for countries within that cluster.

Table 4: Percentage of children in each opportunities, risk and harm, and mediation group per country cluster

	Clusters of countries→ Groups of children ↓	Unprotected networkers	Protected by restrictions	Semi-supported risky gamers	Supported risky explorers	European Average
Opportunities	Restricted learners	14	30	19	14	22%
	Young networkers	26	16	12	20	17%
	Moderate users	20	24	29	19	24%
	All round explorers	14	11	11	12	12%
	Intensive gamers	12	8	18	14	12%
	Experienced networkers	13	12	10	21	13%
Risk and Harm	No risk	70	80	70	66	73%
	Sexual risks	11	8	11	16	11%
	Higher risk/harm	5	4	7	6	5%
	Contact risks	14	8	12	11	10%
Mediation	All-round	13	25	23	21	22%
	Active	29	21	34	47	31%
	Restrictive	21	33	16	17	24%
	Passive	37	22	27	15	24%
Number of countries		4	10	6	5	25

Note: **Red bold** indicates the countries with the highest proportions of children in the group and **blue bold** indicates the countries with the lowest proportions of children in the group.

Unprotected networkers (N=4) (Austria, Hungary, Lithuania and Slovenia)

This cluster stands out for having the highest percentage of *young networkers* and *all-round explorers*, while *restricted learners* are underrepresented compared to the average. The risk pattern of the countries in this cluster is close to the average, with a slightly higher number of children in the *contact risks* group. This cluster has the lowest percentage of children in the *all-round mediation* group (13%), while most belong to the *passive mediation* group (37%). Although Lithuania is geographically further away, Austria, Hungary and Slovenia form a special Central European cluster with children from groups that can be

described as high on network opportunities and related risks while having parents with more *passive mediation* strategies.

Protected by restrictions (N=10) (Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Spain, Turkey and the UK)

With 10 countries, this cluster is undoubtedly the largest one; it not only has the greatest number of countries, but it also includes the largest European countries. While in terms of opportunities, risks and harm and mediation these clusters show high similarity, their policy and internet diffusion history is quite disparate. Therefore, it is important to keep in mind that similar outcomes can be achieved through

different routes. In this report we are not able to bring in evidence of how different national policies or values are differentially linked to similar outcomes. However, it is clear that there is a pay-off taking place where restriction leads to relatively lower risk taking but also to a narrower range of activities as undertaken by children. This cluster has the highest proportion of children in the *restricted learners* group and very few children in the *intensive gamers* group compared to the other clusters. This cluster further stands out for the few risks that are run: 80% of children also belong to the no risk group, and the percentage of children in the other risks groups is the lowest across the board. Compared to the average levels of all European countries most children are from the group where *mediation* is more *restrictive* than active. In geographic terms this cluster embraces the countries of Western and Southern Europe.

Semi-supported risky gamers (N=6) (Bulgaria, Cyprus, Czech Republic, Estonia, Poland and Romania)

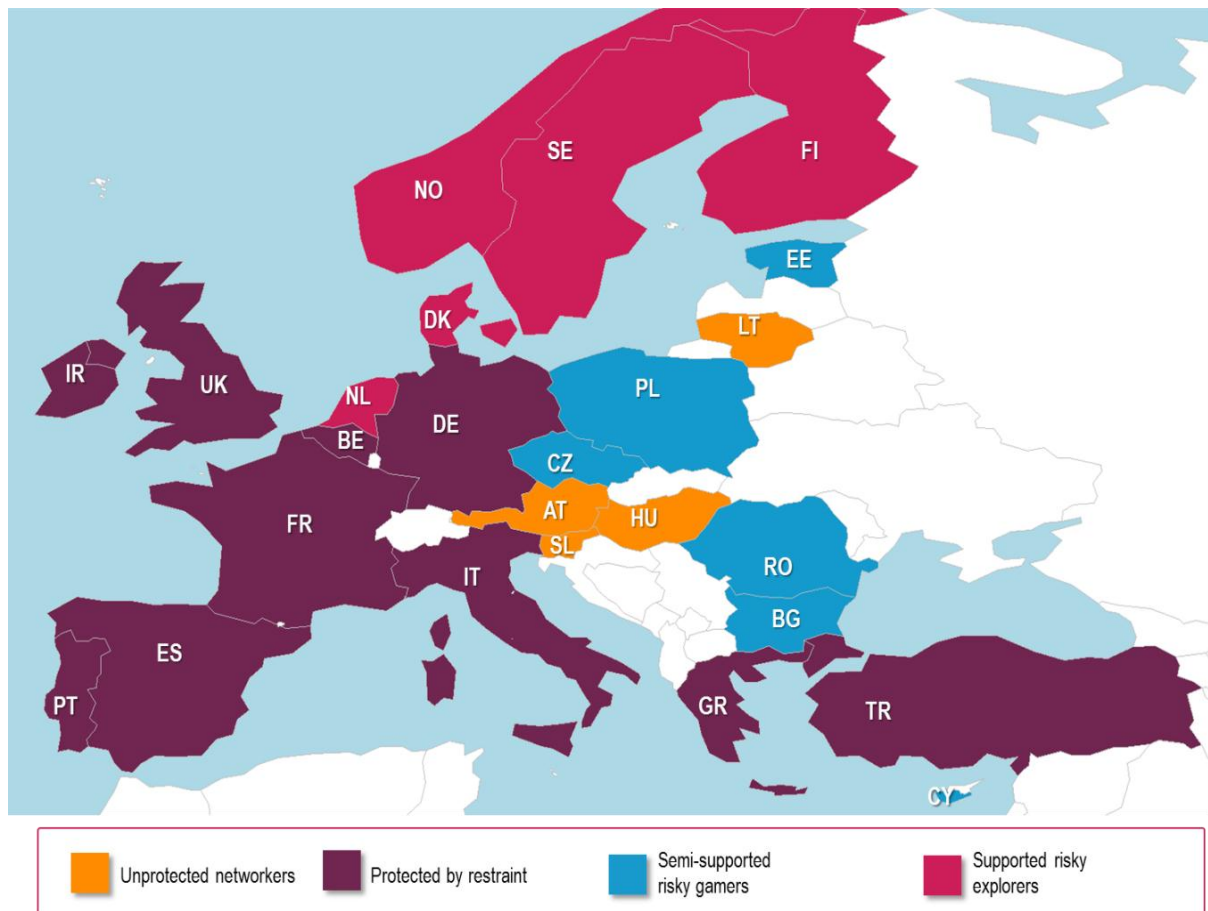
This cluster of countries is the most difficult to pin down. Their common characteristics are the higher proportion of children in the *moderates* group of opportunities, but they also have a relatively high proportion of *intensive gamers* and a below-average level of *young networkers*. They have the highest proportion of children in the *higher risk/harm* group (7%) and average proportions of children in the other risk and harm groups. In this cluster, the group

of children whose parents apply *restrictive mediation* is least frequent compared to other countries, and while children with *actively mediating* parents are most common, the proportion of children in this group is not higher than average. Other forms of mediation also stay around the average. Countries included in this cluster are mainly from Central and South East Europe.

Supported risky explorers (N=5) (Denmark, Finland, the Netherlands, Norway and Sweden)

This cluster is very clearly defined. In this cluster, most of the children can be found in the *experienced networkers* group, while the representation of the groups of *restricted learners* and *moderates* is well below average. This intensive level of engagement with opportunities in networked environments by older children is accompanied by a relatively higher proportion of children in groups that encounter risks, especially *sexual risks*. Only 66% of children belong to the *no risk* group, which is the lowest proportion compared to the other three clusters, and 16% of children are in the *sexual risks* group. There are relatively fewer children here with parents in the *restrictive mediation* group (17%) and a large proportion of children in the group where parents prefer *active mediation* (47%). This cluster of countries belongs geographically and culturally to the Scandinavian region which includes the Netherlands as in previous separate classifications of opportunities, risk and harm, and mediation.

Figure 6: New country classification based on opportunities, risks and harm, and parental mediation



OVERALL SUMMARY AND RECOMMENDATIONS

This report updates and deepens the understanding of cross-national differences among the countries surveyed in EU Kids Online. Where the previous classification was based simply on the percentage of children in each country who used the internet daily, and who had encountered one or more risks, this report examines the range and type of online opportunities and risk of harm experienced by children in each country. It also takes into account the ways in which parents mediate or regulate their children's internet use in each country.

The classification of countries presented in this report shows that while more opportunities are often found in combination with more online risks, this understanding needs to be contextualised for a better understanding of practices of safeguarding children's internet use in European countries. First of all, it should be noted that for many of the groups of children with opportunities, risk and harm, and mediation experiences, differences within countries are larger than differences between countries. For example, higher educated parents are more active in mediating their children's internet use than parents with less education. This implies that policy makers in single countries should also assess the factors within their country that contribute to differences in opportunities, risk and harm, and parental mediation as well as looking at how to benchmark their practices against countries in a similar situation.

In other words, the type of mediation is not the only factor related to risks or harm at a country

level. Within a country, parental mediation should be considered in combination with other influences on and characteristics of young people such as the role that schools and peers play, child development and resilience and the socio-demographic characteristics of their parents.

It is important to note that, at the country level:

- **Risks are not necessarily cumulative.** Countries in which a large group of children encounters a specific risk do not necessarily also have large groups of children who encounter other risks or a greater number of risks.
- **Opportunities and parental mediation practices are also not cumulative.** If there is a large group of children who participate intensively in a particular activity or whose use is mediated actively, other groups of children who are intense users in a different way or whose parents use other passive or restrictive mediation styles are not necessarily present in the country.
- There is **no consistent link between a particular style of parental mediation and lower risk and harm and more opportunities.** While there is a cluster of countries in which restrictive practices co-occur with lower levels of risk and harm, countries with the highest proportion of restrictive mediation practices are not systematically lower risk and harm countries.
- While it is clear that in **countries with a larger representation of experienced, intense user groups** of children more specific risks are run, it is not clear that this

is linked to greater vulnerability. Instead, children in these countries seem to be **more supported in their use**.

Clusters of countries distinguish themselves more from others based on their patterns of content risks, sexual content risks in particular, than in relation to the contact related risks. Children who are bullied and run risks by giving away personal data are more uniformly distributed across countries when parental mediation and broader engagement are taken into account.

The general classification of countries using opportunities, risk and harm, and parental mediation as indicators leads us to the following recommendations for the different country clusters:

Supported risky explorers (Denmark, Finland, the Netherlands, Norway and Sweden)

The cluster of Scandinavian countries, including the Netherlands, in which children who encounter sexual risks are more strongly represented is also the cluster of countries where more experienced networkers can be found. In these countries, the level of internet diffusion is also relatively high, with parents generally more digitally skilled and aware of online risks compared to other countries. Thus, these highly experienced risk takers live in an environment where most of their parents are actively involved in guiding their use or at least being there to support them if they need help. Both parents and children in these countries are more likely to be (pro)active in their use, risk taking and mediation. In these countries, the focus seems to be on supporting children to develop in a digital environment where risks will be encountered.

This is an indication that **parental mediation might co-evolve with risk and opportunity taking** by children – **as children get more experienced and encounter more risks, parents engage more actively in safeguarding their internet use**. It would thus be erroneous to conclude that, in those countries where this type of risk taking is particularly prevalent, active mediation stops risk taking completely.

The need for concern by parents and policy makers in this cluster of countries should be directed towards **a relatively small group of vulnerable children** that encounters the same risks as their peers but is **not embedded in the mediation and opportunity structures** that are common in their country. These children might still be harmed, and specific care remains necessary for the few children in need of protection in this cluster of countries. Policy makers could support parents and schools and stimulate industry players to continue their responsible practices in relation to internet safety and design targeted strategies to reach the relatively few vulnerable children who may 'get lost' in an environment full of experts.

Semi-supported risky gamers (Bulgaria, Cyprus, Czech Republic, Estonia, Poland and Romania)

Perhaps more problematic is the cluster of countries where most children engage only moderately or focus on entertainment-related activities but where still high levels of risks and subsequent harm can be found. Most children in these countries fall into groups that encounter either specific risks or a range of risks and subsequent harm. Very diverse types of mediation are practised in these countries

and active mediation is also included but apparently less effective. Tentatively we might say that there is not a clear message or policy in these countries about effective mediation, and that this is linked to varied risk-taking patterns. Parents seem to be trying strategies across the board, but there is probably less dialogue possible between parents of different groups of children.

Even though active mediation is also relatively frequent in these countries, it does not seem to have the same effect as in the countries where larger percentages of children are experienced in internet use. Perhaps this is the result of **a relatively recent take-up** of the online opportunities, and further **crystallisation of interaction processes between parents and children is still needed** as a base for more internet safety.

For policy makers, **raising awareness among parents on different internet risks and suitable ways to deal with these** might be a way forward. As indicated in previous sections of this report, policy makers and other stakeholders might use the diversity in their country to start discussions that **bring parents and schools together**. **Diversity** and heterogeneity offer **great opportunities to discuss different strategies** and how these might work within the particular cultural and technological landscape that they inhabit.

The configuration of relationships between mediation, opportunities and risks in the supported risky explorers and the semi-supported risky gamers country clusters suggests that the development of parental mediation and children's use practices is a symbiotic and continuous process. This

development can support children to encounter some risks that will help them build resilience without this leading to harm.

Protected by restrictions (Belgium, France, Germany, Greece, Ireland, Italy, Portugal, Spain, Turkey and the UK)

Another combination was found in these countries that have relatively low levels of risk and harm which are also the countries in which use is more limited and restricted to practical activities. While parents might be happy that their **restrictive mediation practices take children away from higher risk** and harm and sexual or contact risks, it does seem that **they may miss out on many of the online opportunities**. In these countries, the emphasis seems to have been on safeguarding children by trying to minimise risk which is linked to restricting their broader engagement.

The question for policy makers, parents and educators in these countries is whether opportunity uptake can be increased while simultaneously limiting more extensive risk taking and, even more importantly, harm. It is likely, from other research, that this means **a move away from more restrictive forms of mediation towards more active mediation** patterns such as those found in the Nordic countries.

There might be no such thing as a completely risk-free environment. **Parents who actively mediate** do so not to prevent all risk but to **make sure that children can encounter risks important for their development and resilience in an environment that safeguards them from serious harm**. This could particularly be taken up by industry,

which might help in creating technological platforms that allow for this relatively safe risk taking and at the same time help children develop their digital literacy and broaden their engagement with the internet.

Unprotected networkers (Austria, Hungary, Lithuania and Slovenia)

Finally, there is a cluster of countries where children are one-sided in terms of both the risks and the opportunities that they encounter online. In these countries the social aspects of Web 2.0 seem to have been taken up with gusto, and the children subsequently experience risks but not as much harm from being in contact with these opportunities.

Here the issue is that **parents are not as involved in their children's internet use** as in the cluster of countries where sexual risks and experienced networkers can be found. This could mean that, **as more children move into the more intensive all-round user groups, they might also encounter more risks and subsequent harm.** It is difficult, of course, to predict how this will play out – countries might have different diffusion and developmental trajectories, and thus we do not know whether such a development would also lead parents to adapt their mediation strategies.

In summary

This report will help us to understand the way in which European countries can be classified in terms of opportunities, risks and harm, and parental mediation styles that children experience. The routes that lead to a country ending up in a specific cluster might have been very different for countries within that cluster, to be able to offer differentiated, targeted

interventions and to engage parents and children, an understanding of the national context is essential. There are lessons to be learned from the characteristics of countries in other clusters as well as from best practices in countries within the same cluster.

Findings detailed in this report give hope that parents' mediation strategies will develop positively and constructively alongside the use of their children's internet use. Nevertheless, there is a risk of a more negative pattern developing in the protected by restrictions and unsupported networkers clusters that limits children's engagement or could lead to higher levels of harm.

Stakeholders concerned about child development and online safety should not rest on their laurels and assume that it will all naturally work out in the end.

In countries with relatively restricted or moderate levels of use (and risk taking), policy makers, industry and third sector stakeholders should work alongside educators and parents to make sure that further and broader engagement in the future is not accompanied by parental mediation strategies that are passive and likely to lead to more harm, or restrictive, which is likely to deny children the opportunities that are available online. Best practices in clusters of countries with more experienced users and parents with more involved mediation strategies can serve as guidelines for how to achieve this.

Each child will also require individually tailored mediation related to their social environment and experiences and, of course, in those rare cases where a child has come to more serious

harm, counselling and trained advisers must be available.

However, general awareness-raising campaigns and policies aimed at creating an online environment where children can take up opportunities and encounter risks safely are important to support parents and educators in their efforts.

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ANNEX 1: EU KIDS ONLINE

Overview

In its first phase (2006-9), as a thematic network of 21 countries, EU Kids Online identified and critically evaluated the findings of nearly 400 research studies, drawing substantive, methodological and policy-relevant conclusions. In its second phase (2009-11), as a knowledge enhancement project across 25 countries, the network surveyed children and parents to produce original, rigorous data on their internet use, risk experiences and safety mediation. In its third phase (2011-14), the EU Kids Online network is examining findings and critical analyses of internet and mobile technology uses and associated risks among children across Europe, drawing on these to sustain an active dialogue with stakeholders about priority areas of concern for child online safety.

Thus, the network has widened its work by including all member states and extending its engagement – both proactively and responsively - with policy stakeholders and internet safety initiatives. It has also deepened its work through targeted hypothesis testing of the pan-European dataset, focused on strengthening insights into the risk environment and strategies of safety mediation, by pilot testing innovative research methodologies for the nature, meaning and consequences of children's online risk experiences, and conducting longitudinal comparisons of findings where available over time.

Last, it is updating its work on the online database of available findings, and by producing timely updates on the latest knowledge about new and emerging issues (for example, social networking, mobile platforms, privacy, personal data protection, safety

and awareness-raising practices in schools, digital literacy and citizenship, geo-location services, and so forth).

Work packages

- WP1: Project management and evaluation.
- WP2: European evidence base
- WP3: Hypotheses and comparisons
- WP4: Exploring children's understanding of risk
- WP5: Dissemination of project results
- WP6: Policy implications

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