



Co-funded by the European Union



THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE

Patterns of risk and safety online

**In-depth analyses from the *EU Kids Online*
survey of 9- to 16-year-olds and their
parents in 25 European countries**

August 2011



**Uwe Hasebrink, Anke Görzig, Leslie Haddon,
Veronika Kalmus, Sonia Livingstone
and members of the EU Kids Online network**

ISSN 2045-256X

www.eukidsonline.net

This report presents the findings from statistical analyses for *EU Kids Online* Deliverable D5: Patterns of Risk and Safety Online to the European Commission Safer Internet Programme (August 2011). It has been produced by members of the *EU Kids Online* network (Annex 2), as advised by the International Advisory Panel (Annex 1), for the European Commission's Safer Internet Programme (August 2011).

Please cite this report as:

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*. LSE, London: EU Kids Online.

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

- Lobe, B., Livingstone, S., Ólafsson, K. and Vodeb, H. (2011) *Cross-national comparison of risks and safety on the internet: Initial analysis from the EU Kids Online survey of European children*.
- 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*.
- Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The UK report*.
- O'Neill, B. and McLaughlin, S. (2010). *Recommendations on safety initiatives*.
- de Haan, J. and Livingstone, S. (2009) *Policy and research recommendations*.
- 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).
- Lobe, B., Livingstone, S. and Haddon, L. with others (2007) *Researching children's experiences online across countries: Issues and problems in methodology*.
- Lobe, B., Livingstone, S., Ólafsson, K. and Simões, J.A. (eds) (2008) *Best practice research guide: How to research children and online technologies in comparative perspective*.
- Staksrud, E., Livingstone, S., Haddon, L. and Ólafsson, K. (2009) *What do we know about children's use of online technologies? A report on data availability and research gaps in Europe* (2nd edn).
- Stald, G. and Haddon, L. (eds) (2008) *Cross-cultural contexts of research: Factors influencing the study of children and the internet in Europe* (national reports also available at www.eukidsonline.net).

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

CONTENTS

Contents	3	3.4. WHICH FACTORS SHAPE EXPERIENCES WITH MEETING NEW PEOPLE?.....	50
Figures	4	3.5. WHICH FACTORS SHAPE EXPERIENCES OF HARM AND COPING?	53
Tables	5	4. Social Mediation	57
Key findings	7	4.1. WHAT ARE RELEVANT FORMS OF SOCIAL MEDIATION?....	57
THE <i>EU KIDS ONLINE</i> PROJECT	7	4.2. HOW ARE DIFFERENT FORMS OF PARENTAL MEDIATION RELATED TO RISK AND HARM, AND SKILLS AND OPPORTUNITIES?	61
USES AND ACTIVITIES ONLINE	7	4.3. HOW IS MEDIATION BY TEACHERS AND PEERS RELATED TO CHILDREN’S SKILLS AND OPPORTUNITIES AND ONLINE RISKS AND HARM?	64
RISK AND HARM.....	9	5. Conclusions	69
SOCIAL MEDIATION.....	11	5.1. AGE AND SOCIAL BACKGROUND MATTER.....	69
GENERAL CONCLUSIONS	13	5.2. ONLINE AND OFFLINE RISKS ARE CLOSELY LINKED.....	70
1. Introduction	15	5.3. PREDICTORS OF RISK ARE NOT PREDICTORS OF HARM	71
1.1. CONTEXT.....	15	5.4. SOME CHILDREN ARE MORE VULNERABLE – ACROSS RISKS, OFFLINE AND ONLINE.....	71
1.2. THIS REPORT	16	5.5. SOCIAL MEDIATION WORKS BUT...	71
1.3. FRAMING THE PROJECT	16	5.6. COMBINING PATTERNS OF ONLINE USE AND PATTERNS OF ONLINE RISKS AND HARM.....	72
1.4. PROJECT DESIGN	18	Annex 1: EU Kids Online	75
1.5. METHODOLOGY	18	OVERVIEW.....	75
2. Access and Usage	21	OBJECTIVES	75
2.1. WHICH CHILDREN ARE FULLY ONLINE?.....	21	WORK PACKAGES	75
2.2. HOW DO CHILDREN ‘DOMESTICATE’ THE INTERNET?	23	INTERNATIONAL ADVISORY PANEL.....	75
2.3. WHICH ONLINE OPPORTUNITIES DO CHILDREN USE?	26	Annex 2: The network	76
2.4. HOW ARE ONLINE SKILLS DISTRIBUTED IN DIFFERENT GROUPS?	28	COUNTRY	76
2.5. HOW DO YOUNG PEOPLE DEAL WITH PRIVACY ISSUES?	31	NATIONAL CONTACT INFORMATION.....	76
2.6. WHAT ARE THE DETERMINANTS OF EXCESSIVE INTERNET USE?	34	TEAM MEMBERS	76
2.7. WHICH PATTERNS AND TYPES OF ONLINE USE CAN BE IDENTIFIED?	36	Annex 3: Commonly used Measures	78
3. Risks and Harm	41		
3.1. RESEARCHING EXPERIENCES OF RISK AND HARM	41		
3.2. WHICH FACTORS SHAPE BULLYING BEHAVIOURS AND EXPERIENCES?	42		
3.3. WHICH FACTORS SHAPE THE EXPERIENCE OF SEXUAL CONTENT ONLINE?.....	47		

FIGURES

Figure 1: Countries surveyed by <i>EU Kids Online</i>	16	Figure 19: Parental mediation and children's risk exposure on the internet.....	62
Figure 2: Possible consequences of online activities	17	Figure 20: Parental mediation and children being perpetrators.....	62
Figure 3: Relating online use, activities and risk factors to harm to children	18	Figure 21: Parental mediation and children's overall harm experience.....	63
Figure 4: Children's use of internet at home	22	Figure 22: Parental mediation and number of children's online activities last month.....	63
Figure 5: How long children use the internet for on an average day (in minutes).....	24	Figure 23: Types of parental mediation and children's digital skills	64
Figure 6: Relations between parents' internet use, children's access, and amount of use	24	Figure 24: Correlations between the indexes of children's digital skills and online activities, and mediation by teachers and peers	65
Figure 7: 'I know more about the internet than my parents'	30	Figure 25: Correlations between mediation by teachers and peers and children's digital skills and number of online activities (in age groups).....	66
Figure 8: Children who have a profile on a social networking site.....	32	Figure 26: Correlations between mediation by teachers and peers and children's digital skills and number of online activities (for boys and girls)	66
Figure 9: Children's use of social networking sites by age and whether parents regulate their use.....	32		
Figure 10: Children's use of social networking site privacy settings.....	33		
Figure 11: Child has experienced one or more form of excessive internet use fairly or very often (age 11+)	35		
Figure 12: Distribution of user types within gender and age groups.....	39		
Figure 13: Percentages of children among those involved in online bullying who have been bullied, have bullied, or both, by demographics	43		
Figure 14: Children's psychological characteristics as a function of having been bullied online, having bullied others online, neither or both.....	44		
Figure 15: The proportion of children who have been bully victims online or offline, of those who are bullies (on- or offline) or not bullies	44		
Figure 16: Children's responses to online bullying of those who are bullies (on- or offline) or not bullies	45		
Figure 17: The increase in the odds of being an online as compared to an offline bully when each measure increases by one unit.....	46		
Figure 18: Intensity of harm by risk type.	55		

TABLES

Table 1: Influence of demographic factors on forms of online access (linear regressions, beta-weights).....	22	Table 21: Differences in parental mediation (according to child) between internet-using and non-using parents	57
Table 2: Where children use the internet.....	23	Table 22: Teachers' mediation of child's internet use, according to child.....	58
Table 3: Logistic regression predicting children's access from own bedroom	25	Table 23: Peer mediation of child's internet use, according to child.....	59
Table 4: Logistic regression predicting children's daily use	26	Table 24: Different sources of advice on security, according to child (%)	59
Table 5: Children's activities online in the past month....	27	Table 25: Help from parents, teachers and peers, according to child (%)	60
Table 6: 'Ladder of opportunities' – type of opportunities taken up by groups with a different range of activities....	28	Table 26: Who the child talked to when... (%).....	61
Table 7: Children's digital literacy and safety skills	29	Table 27: Correlations between the indexes of mediation by teachers and peers, and children's experiences of online risks and harm.....	67
Table 8: Children's ability to use safety features	33	Table 28: Correlations (Phi coefficients) between the indicators of mediation by teachers and peers, and children's overall experiences of online risk and harm ...	67
Table 9: Number and characteristics of children's contacts	34	Table 29: Indicators of risk and harm for different user types.....	73
Table 10: Linear regression: factors associated with excessive internet usage (beta weights).....	35		
Table 11: Factor analysis on online activities	37		
Table 12: Description of clusters representing patterns of young people's online use.....	38		
Table 13: Distribution of age and gender groups within clusters (column %).....	39		
Table 14: Correlations among predictors and mediators for risk of sexual content online (ages 11-16).....	49		
Table 15: Correlations among predictors and harm from sexual content online (ages 11-16).....	50		
Table 16: Logistic regression for the risk of contacting online people never met face to face	51		
Table 17: Logistic regression for the risk of meeting people offline having first met them online	52		
Table 18: Correlations among factors predicting harm from meeting new online contacts offline.....	53		
Table 19: Exposure to online risks and intensity of harm (correlations).....	54		
Table 20: Use of coping strategies among those feeling bothered (correlations)	56		

KEY FINDINGS

The *EU Kids Online* project

- 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. The network has been funded by the European Commission's (EC) 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 of 25,000 children across Europe, and was designed and conducted according to rigorous standards by the *EU Kids Online* network. Top-line findings for the survey have already been 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, examining the patterns of use, activities, risks and safety within these 25 countries focusing on individual and group-level differences (age, gender, parental education, and so forth).
- It is paired with a parallel report, published simultaneously (August 2011), *Cross-national comparison of risks and safety on the internet*, which examines cross-national differences in children's experiences of the internet in Europe, depending on the country they live in.
- 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.

The findings of the present report are summarised below.

Uses and activities online

- In keeping with the literature showing the growth of children's 'bedroom culture', roughly half of children now access the internet from their own bedrooms (49%) or from a friend's home (53%).
- Private use in the child's bedroom is strongly differentiated by age – for younger children, use is generally in a public room; for teenagers it occurs more often in private.
- The **differences in access/use by socioeconomic status (SES) are notable** – both the overall difference in access at home (only 72% of children from low SES homes use the internet at home compared with 96% of those from high SES homes) and the difference in access from own bedroom (41% versus 54%).¹
- Privatised access and experience with the internet shape its **embeddedness in daily routines** (that is, frequency and duration of online use).
- Parental online behaviour, in turn, now plays a part in shaping the context of use, thus indirectly mediating frequency of use and time spent online.
- The **number of activities** young people engage in increases with the years of age and with the 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.
- Different online activities can be grouped into five stages, which reflect a '**ladder of opportunities**':
- Stage 1: popular activities that are practised most by children 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.

¹ As already noted, there is an association between the SES classification and countries, since an absolute measure of SES was used. Thus throughout this report, SES differences may also reflect country differences.

- Stage 3: communicative and news-related activities consist mostly of visiting social networking sites, use of 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: those who expand their activities to 10 or more are likely to engage in playing games against other people, downloading music or films, posting photos, using a webcam or posting messages on websites. These activities include some conduct-related practices where young people become active contributors to the online environments.
- Stage 5: these activities are regularly practised by those who 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.
- Children between 11 and 16 years old report most frequently (almost two-thirds) that they have mastered the **skills** necessary for bookmarking a website, blocking messages from people and finding safety information; slightly more than one-half say they can change the privacy settings of their social networking profile. In contrast, children say the least often that they are able to change filter preferences.
- The older the children, the higher the self-reported skills. Boys report slightly more skills than girls. And children whose parents are higher educated are more skilful.
- Activities, skills and children's beliefs in their internet abilities are all positively associated. In short, the more children do online, the more skills they have and the more they judge that they know a lot about the internet. Or, the more skills and/or self-confidence children have, the greater the range of online activities they undertake. But the converse is also the case – the less of one of these, the less likely the others.
- With regard to **social networking sites**, one-third (32%) of parents of the children surveyed say their child is not permitted to have a social networking site profile. A fifth (20%) says their child can only use social networking sites with supervision. Half say they do not restrict their child's use of social networking sites.
- Among social network users, 43% keep their profile private so that only their friends can see it. A further 28% report that their profile is partially private so that friends of friends and networks can see it. Notably, 26% report that their profile is public so that anyone can see it.
- Girls, and children from higher SES homes, appear more likely to keep their social networking profile private.
- Just over half of the 11- to 12-year-olds, rising to over three-quarters of the 15- to 16-year-olds, know how to change the privacy settings on their profile.
- Given that younger children are more likely to have their profile set to public, it is reassuring that they are slightly less likely to disclose their address, telephone number or the name of their school on their profile.
- Findings with regard to **excessive online use** show no differences by SES of household, and only a marginal difference by gender, with boys being slightly more likely to report one or more of the forms of excessive use (24%, compared with 22% of girls).
- Differences by age are more marked, with one-quarter (23%) of 11- to 12-year-olds, rising to over a third (36%) of 15- to 16-year-olds, experiencing the consequences of excessive use.
- Consistent with previous research, the results show that those with psychological difficulties and to a smaller degree those who are sensation seeking, are more likely to show symptoms of excessive use.
- Based on the amount of use, the range of online activities, the performance of 17 specific activities, the number of risky online activities and the number of personal profiles on social networking platforms, six comprehensive **patterns of young people's online use** have been identified in this study:
- Cluster 1, '**Low use/learning oriented**': members of this cluster are characterised by a small amount of online use and a small range of activities. Risky activities are very unlikely; only a few have their own profile on a social networking site. With the exception of schoolwork, most of the activities do not happen very often. Next to schoolwork and watching video clips, reading or watching the news is the second activity. The average age in this cluster is 11.4 years.
- Cluster 2, '**Low use/social networking site oriented**': being generally quite similar to Cluster 1, the relevant differences are the very low values for schoolwork as well as for reading/watching the news, and the higher likelihood of visiting social networking site profiles. The average age in this cluster is 11.5 years.



- Cluster 3, **'Moderate use'**: compared to the first two clusters, these users spend more time on the internet and have a considerably bigger range of activities. On the other hand, compared to the other clusters, the figures are lower, without specific activities being particularly frequent. The average age in this cluster is 13.1 years.
- Cluster 4, **'Diverse and risky opportunities'**: in addition to spending almost two hours a day on the internet, this group has the biggest range of activities and also the biggest number of risky online activities. They are most likely to read/watch news, to download music or films, to send or receive emails, to play games with others and to use a webcam. In particular, the less popular, more creative activities are by far the most frequent in this group: creating avatars, using file-sharing sites, spending time in virtual worlds and writing blogs or diaries. The average age in this cluster is 13.4 years.
- Cluster 5, **'High use/entertainment oriented'**: this pattern is characterised by the longest duration of daily online use (201 minutes), while the range of activities is lower than for Cluster 4, although still above the overall average. Playing games on your own or against the computer and watching video clips are the two specific activities with the highest values among all clusters. Comparatively low are the figures for schoolwork, reading/watching the news and all activities related to producing or publishing – such as writing blogs or diaries, or posting messages. The average age in this cluster is 14.0 years; boys are clearly overrepresented.
- Cluster 6, **'Focused social web use'**: young people belonging to this cluster are slightly above average regarding the amount of use and the range of activities. The most obvious characteristic is the almost complete absence of gaming activities. On the other hand, they are most likely to visit social networking profiles. Some other activities are almost as frequent as in the 'Diverse and risky opportunities' group (Cluster 4): reading/watching news, instant messaging, posting photos or music, writing blogs or diaries. The average age in this cluster is 14.2 years; girls are clearly overrepresented.
- As the cluster descriptions show, there is a general tendency of a **'the more the more'** rule, according to which the time spent online, the range of activities, as well as most of the specific activities are positively correlated. This observation is in line with the 'ladder of opportunities' as presented above. However, the clusters also show that **concrete patterns of use do not completely follow this rule**. Cluster 5 has by far

the longest time spent online, but only a moderate range of activities; the opposite is true for Cluster 4. The younger Clusters 1 and 2 have almost the same duration of use and range of activities, but they obviously use the internet for different kinds of activities.

Risk and harm

- In order to investigate **bullying experiences**, children were asked about being treated/treating people in a hurtful or nasty way on the internet; this could include anything from single to repeated or persistent occurrences.
- Across Europe, 6% of 9 to 16-year-olds who use the internet report having been bullied online while only half as many (3%) confess to having bullied others.
- Since 19% have been bullied either online and/or offline, and 12% have bullied someone else either online and/or offline, it seems **more bullying occurs offline than online**.
- There is a **link between offline and online bullying**: 56% of online bullies said they had bullied others face-to-face and 55% of online bullying victims also claimed to be victims of face-to-face bullying.
- It seems that **bullying and being bullied tend to go together**. Among those who do not bully others, being bullied is relatively rare – 8% offline only, and 4% online. But, among those who have bullied others offline, nearly half (47%) have also been bullied offline (and fewer online). On the other hand, among those who have bullied others online, nearly half (40%) have been bullied online (and fewer offline).
- Among those involved in online bullying, girls, younger children and those from a low socio-demographic background report more often being victims of bullying and less often to bully others than boys, older children and those with a higher socio-demographic background.
- Analyses with regard to the role of psychological characteristics suggest that psychological difficulties are associated with both online bullying and victimisation, sensation seeking with online bullying and ostracism with victimisation from online bullying. Those involved in online bullying show overall a higher psychological vulnerability than those not involved in online bullying.
- Children who are bullied and/or bully others online have similar demographic and psychological profiles to those who are bullied and/or bully offline. It is suggested that those children bullied or bullying

online are not very different from those bullied or bullying offline except in that they make use of the affordances of the internet (for example, the chance to meet new people online or to network with peers).

- Those children who are causing harmful experiences online to others in the form of bullying are often the very same ones being bullied online by others, some of them known and some unknown to them offline.
- With regard to **sexual content** online, the *EU Kids Online* study focused in particular on two types of sexual content: sexual messages (sexting) and sexual images.
- Fifteen per cent of the sample had received a sexual message, while 4% (about 25% of those who had received a message) were upset by it.
- Fourteen per cent of the sample had seen sexual images online, while 4% (about 25% of those who had seen an image) were upset by it.
- While gender only made a slight difference for sexual messages, it had a small effect for seeing sexual images, with boys having seen more than girls. Further, the older the children, the more likely the experience of sexual content online.
- Those with high self-efficacy, a high sensation-seeking orientation and various kinds of psychological difficulties were more likely to experience sexual content. Self-efficacy matters slightly more for sexual images while psychological difficulties are more important among sexual messages.
- In addition, a hypothesis of 'risk migration' was confirmed: those who experienced a range of risks offline were more likely to experience sexual content online, slightly more so for sexual messages than for sexual images.
- As regards harm, younger children and girls are more likely to be upset by experiencing sexual content online, and the gender difference is slightly more pronounced for sexual messages.
- Among the psychological predictors, the strongest effect as explaining harm from both types of sexual content was psychological difficulties: children with more psychological difficulties are more likely to find sexual content online upsetting than those lower on this measure.
- While higher scores on sensation seeking were associated with experiencing more types of sexual content, among those who encountered sexual content, lower sensation seeking is associated with greater upset for sexual messaging (but not for

sexual images), possibly because children low in sensation seeking have had fewer occasions to develop resilience to sexual messaging online.

- Along similar lines, while higher scores on self-efficacy were associated with experiencing more types of sexual content, among those who encountered sexual content, higher self-efficacy is associated with less harm (upset) from both forms of sexual content. This supports other research showing that self-efficacy plays an important role in adaptive action and coping.
- With regard to **meeting new people online**, one can differentiate between friends of friends or friends of family and 'complete strangers' – with no such link. In the survey, 5% of children claimed to have made contact online and subsequently met offline with the former, and 4% with the latter.
- Gender and SES make no difference, although the older the children, the more likely they are to have online contacts with new people.
- Nine per cent of the children have met people offline whom they have previously only met online. Those who did so are characterised by higher values for psychological problems, Risky offline activities, sensation seeking and taking (other) online risks.
- As in the case of online contacts, those going to meetings are more likely to have a higher self-efficacy and spend more time online. It seems that children with high self-efficacy, that is, those who are believed to have the resources and ability to cope with upcoming problems, are more willing to explore facets of both their online and offline worlds.
- One per cent of all children said they had met someone offline whom they had first met online and it had bothered them (or 11% of children going to such meetings).
- Those who experienced harm have lower values in self-efficacy and higher values in psychological difficulties. Younger children are more likely to be upset after a bothersome meeting with a new online contact than older children. Gender had no significant effect in this respect. These findings support the vulnerability hypothesis, with children who are vulnerable due to psychological difficulties experiencing more harm by these types of bothersome episodes.
- Analyses of **how children cope with harm** started with comparing the harm linked with different risks. Online bullying is the online risk that most upsets young people, with 85% of the victims indicating to be upset in some way or another. The intensity of harm



for children from sexual images and sexual messages is almost equivalent. The findings highlight the fact that for about three quarters of children sexual content online is not upsetting. Meeting new online contacts offline is least likely to result in a negative experience with 93% of children not feeling upset at all by this suggesting that meeting new online contacts offline can indeed also offer a lot of positive things for children (e.g., making new friends, increasing ones social support network).

- Some psychological characteristics are closely associated with the child's level of perceived harm, irrespective of the type of risk with which the child is confronted. Children higher in self-efficacy are more likely to be less upset and thus more resilient to harm, while children with greater psychological difficulties experience more harm.
- Other characteristics are linked with harm caused by specific risks:
- Sensation seekers are less likely to be very upset when responding to online bullying and sexual messages.
- Children's higher position on the ladder of digital opportunities (that is, range of activities online) is associated with being less upset in response to sexual content online.
- Younger children feel upset more intensely in the case of sexual risks (both sexual images and messages) and meeting new online contacts offline, but age makes no difference in the case of online bullying.
- Girls tend to have a more negative response (intensity of harm) in the case of online bullying and sexual content risks, but when we look at meeting new online contacts offline, the gender difference disappears – boys and girls then appear equally resilient.
- Different coping strategies used by children were grouped into types. Two were called 'passive', with the first being most closely captured by the response of 'hoping the problem would go away'. This response is practised by about one in four of those feeling bothered,
- Another 'passive' coping strategy, 'deciding to stop using the internet for a while', can be interpreted as just avoiding the problem without eliminating the actual cause. On the one hand, seven in ten children going offline for a while after an upsetting experience indicate this strategy was 'helpful' to them.

- Another type of strategy was 'communicative', Children who generally feel upset more intensely, tend to be more communicative.
- The fourth type of strategy was a 'proactive one', either involving the more general 'try to fix the problem' or more internet-specific coping strategies, that is, deleting the message or blocking the sender. As the feeling of being upset becomes more intense, children's tendency to proactively try to fix the problem increases. Willingness to tackle problems is also stronger among those with high self-efficacy. Given that some options require skills, those with a higher range of online activities are also more likely to adopt this option in the case of sexual images and sexting.
- Of the different coping approaches, the response of communicating with others about the problem is adopted much more across all risks. That said, this is especially true in the case of online bullying, where 77% report that they talked to somebody when being bullied.
- In general, children who feel more upset when confronted with risks and those who take longer to get over being upset are more likely to display a response of any kind: whether passive, communicative or proactive. And, in one sense, this is understandable – while some may hope the problem will go away, many are more motivated to do something to stop what is problematic to them. This does have the implication, however, that some are taking positive actions that may contribute to their resilience in the future.

Social mediation

- With regard to **parental mediation**, the following types of mediation were distinguished:
- **Active mediation** of a child's internet use includes talking with children about particular media activities or sharing these activities with them. Active mediation of a child's internet safety includes guiding children in online safety, either by helping them in case of difficulty, or by telling them what to do in an upsetting or disturbing situation.
- **Restrictive mediation** involves setting up rules about what children can or cannot do.
- **Monitoring** involves checking the computer to see what children have been doing, checking children's profiles on a social networking site or the messages in their email or instant messaging account.

- **Technical mediation** of a child's internet use can involve specific software built to filter and restrict certain types of unwanted use.
- Almost nine out of ten European children receive advice from their parents about internet use and internet safety, and they have restrictive rules at home. Three quarters of parents adopt technical mediation through the use of parental control or other means of blocking and filtering some types of websites. Monitoring is less frequent, only experienced by half of the children.
- Parental mediation decreases as the child grows up. This is particularly evident in the case of restrictive strategies: 95% of 9- to 10-year-olds experience this as opposed to 71% of 15- to 16-year-olds. Parents also restrict girls' use slightly more than boys' (87% versus 83%). Parents are more active in higher than lower SES households in terms of giving advice about use and safety; this finding is plausible since higher SES parents are more likely to be internet users themselves and hence more likely to be technically competent.
- Around half of children think that their **teachers** have engaged with their internet use in most of the ways asked about, and 73% of children say their teachers have done at least one of the forms of active mediation asked about.
- Teachers mostly practise restrictive mediation. On average, 62% of the children say that their teachers set rules for using the internet at school.
- Only one-quarter (24%) say their teachers have helped when something bothered them on the internet, but doubtless this reflects the relatively few incidents that bother children.
- Still, given the range of questions asked about, it is noteworthy that one in five children who use the internet report that their teachers have not engaged with them in any of these ways at all.
- Three-quarters (73%) of children say their **peers** have helped or supported their internet use in at least one of the five ways asked about.
- As with teachers, this suggests that children do consider other children quite supportive in general, more so in the case of older children.
- Peers are much more likely to mediate in a practical way, helping each other to do or find something when there is a difficulty (64%). Fewer say that peers help when they are bothered by something (28%), but as noted before, this may reflect the fact that few are bothered. Moreover, this finding is slightly higher than in the case of teachers.
- As for the **relative importance of different agents of mediation**, parents are clearly the main agents of mediation about safety.
- The role of teachers also appears to be important; this role overtakes that of parents for older teenagers and for children from lower SES homes. This is a major finding that should lead public policies to more information campaigns targeted at teachers, especially in countries where teachers are little involved: the data show major differences between countries. For example, more children in the UK say that their teachers are active for giving safety advice (83%) as compared to children in France and Romania (40%).
- Other relatives are also slightly more important (47%) for safety advice than peers (44%). The role of mass media is low (only 20%), and the importance of resources on the web is even lower. Thus, altogether, safety issues are covered mainly by adults present in children's everyday lives.
- There are variations linked to the coping strategies used by children. Talking to someone is one of the strategies used by children when confronted with a risk. Risks linked to sexual content are less talked about with someone than risks linked to unpleasant communication or unpleasant meetings: 77% of those who had been bullied talked to someone versus 53% of those who had seen sexual images.
- Findings show the major role of peers when seeking social support (talking to someone): it is friends that children turn to at first, whatever the type of risk. Intra-generational social support in the family (talking to siblings) is unexpectedly low, compared to the role played by peer groups and compared to the frequency of turning to parents. Around a quarter of children talk to their parents when seeing sexual images and receiving sexual messages, 40% when being bullied and 28% when being bothered after meeting offline an online contact. There are no equivalent adult interlocutors, even among teachers, who play an important role for safety advice.
- The most surprising finding when comparing agents of mediation is the important role of parents, not only for giving advice or setting rules, but also for being turned to for social support when the child feels bothered by something on the internet. Although not completely in line with many studies pointing at the autonomous nature of children's culture on the internet, we see a pattern where parents are still present, being accepted as qualified authorities and being turned to when children face problems.



- With regard to how different forms of parental mediation are related to risk and harm on the one hand, and skills and opportunities on the other, the findings may be summarised as follows:
- Many forms of mediation are related to the experience of risks, including risks of being a perpetrator, such as bullying others, but this is in part due to the large sample making statistical differences significant. When individual age groups are examined (9-10, 11-12 etc), restrictive mediation is the only type of strategy that is negatively related to the experience of risks among all age groups.
- In the case of harm, only children who report restrictive mediation by their parents are less likely to have harmful experiences. For the other forms of mediation the opposite is true. Although it is difficult to explain this fact, changes in parental mediation as a consequence of some exposure to risk might be the reason for this finding.
- Regarding opportunities, the most significant aspect is that restrictive mediation is negatively related to the average number of children's online activities and digital skills.
- In sum, although mediation, more so with applying restrictions, may reduce risks, there is no evidence that it reduces harm among those who experience risks. Moreover, it may well be that restrictions, in particular, limit positive outcomes. This reminds us that we have to be careful and not too narrow-minded in judging 'effectiveness' – while a strategy may be somewhat effective in achieving a specific purpose such as risk reduction, it can have other important negative side-effects, and so effectiveness has to be evaluated more broadly.
- In general, the statistical relationships between **teachers' and peer mediation** on the one hand, and the **children's experiences of risks and harm** on the other, are very weak, almost negligible. Thus, there is no evidence that teachers' and peer mediation would reduce the probability of children's negative online experiences. Rather, the study supports a tentative hypothesis about the retroactive mediating role played by peers (and teachers): when children have experienced harm online, they turn to friends or, more seldom, to a teacher to discuss it afterwards.
- The analysis also implies, given that support from teachers and friends is positively, although weakly, correlated with children's digital literacy and safety skills, that these two types of social mediation, particularly the role played by teachers, have a great

potential for contributing to preventing online risks and harm through further advancement of children's online media competences.

General conclusions

The overall findings of the report may be summarised in the following points:

- Age and social background matter.
- Online and offline risks are closely linked.
- Predictors of risk are not predictors of harm.
- Some children are more vulnerable – across risks, offline and online.
- Social mediation works to some extent.
- Patterns of online use can be linked to patterns of online risks and harm.

Specifically, we can re-describe the six clusters now, adding risks to the patterns of use and activities as follows:

- The **'Low use/learning oriented'** cluster included younger children with a small amount of online use and a small range of activities. Risky activities are very unlikely, and only a few have their own profile on a social networking site. With the exception of schoolwork, most of the activities do not happen very often. Next to schoolwork and watching video clips, reading or watching the news is the second most popular activity. *For this group all the risk indicators are very low, while the indicators for harm are quite high; particularly for sexual content and meeting new people the likelihood that risk is connected with harm is higher than in any other group.*
- The **'Low use/social networking site oriented'** cluster also includes younger children; the relevant differences to the first cluster are the low values for schoolwork as well as for reading/watching the news, and the higher likelihood to visit social networking site profiles. *All indicators for risks are moderately higher in this group than for the first one. The most marked difference concerns meeting new people offline: this group is far more likely to meet new people – and far less likely to be upset by these experiences.*
- The **'Moderate use'** cluster, on average 1.5 years older than the first two clusters, spends more time with the internet and has a considerably bigger range of activities., though not as many as the other three groups described below. In this group no specific activities are particularly frequent, *but all risk indicators are higher than in the first two groups.*

- The **'Diverse and risky opportunities'** cluster, on average aged 13.4 years, has the biggest range of activities and also the biggest number of risky online activities. They are most likely to read/watch news, to download music or films, to send or receive emails, to play games with others and to use a webcam. In particular the less popular, more creative activities are by far most frequent in this group: create avatars, use file-sharing sites, spend time in virtual worlds and write blogs or diaries. Although this group is younger than the other two high-risk groups (see below), and the amount of use is considerably lower than in the 'High use/entertainment oriented' group, *we generally find the highest level of risk experiences – and, at the same time the lowest likelihood that risk is linked with negative experiences.*
- The **'High use/entertainment oriented'** cluster, on average aged 14 years and including more boys than girls, is characterised by the longest duration of daily online use, while the range of activities is lower than in the previous cluster. Playing games on their own or against the computer and watching video clips are the two specific activities with the highest values among all clusters. Comparatively low are the figures for schoolwork, reading/watching the news and all activities related to producing or publishing, such as writing blogs or diaries or posting messages. *The likelihood of risk experiences is also quite high, including the index for excessive online use.*
- The **'Focused social web use'** cluster, being the oldest one (14.2 years), and including more girls than boys, is slightly above the average regarding the amount of internet use and the range of activities. The most obvious characteristic is the almost complete absence of gaming activities. On the other hand, they are most likely to visit social networking profiles. Some other activities are almost as frequent as in the 'Diverse and risky opportunities' group: reading/watching news, instant messaging, posting photos or music, writing blogs or diaries. *The likelihood of risk experiences is similar to the two previous groups, but as a rule (except from the parents' perspective), slightly lower. On the other hand they are slightly more likely to feel bothered about risky experiences.*

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.² Interestingly, the risks of concern to children are often not those that lead to adult anxiety.³ Also, it appears that the more children go online to gain benefits, the more they may encounter risks, accidentally or deliberately.⁴

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 intervention.

Further, despite the popular rhetoric of 'digital natives', many children still lack the resources to use the internet sufficiently to explore its opportunities or develop vital digital literacy skills.⁵ Thus it is important to encourage and facilitate children's confident and flexible internet use. A difficult balancing act faces stakeholders: 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.⁶

Starting from these premises and from the observation that politics in the field of safer internet initiatives need more detailed and fully comparable empirical evidence from as many European countries as possible, the *EU Kids Online* network has designed and conducted a new and unique project, funded by the European Commission's (EC) Safer Internet Programme.⁷

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 safety practices regarding the internet and online technologies. Significantly, findings come from interviews

² 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.

³ Optem (2007) *Safer internet for children: Qualitative study in 29 European countries*, Luxembourg: European Commission.

⁴ Livingstone, S. and Helsper, E. (2010) 'Balancing opportunities and risks in teenagers' use of the internet', *New Media & Society*, 12(2), 309-29.

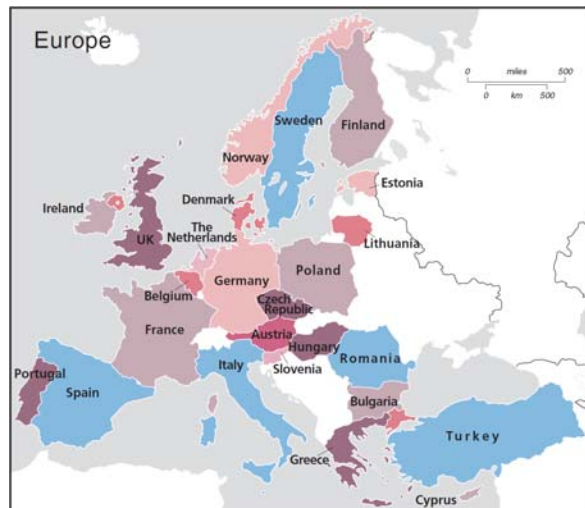
⁵ Helsper, E. and Eynon, R. (2010) 'Digital natives: where is the evidence?', *British Educational Research Journal*, 36(3), 502-20.

⁶ Livingstone, S. (2009) *Children and the internet: Great expectations, challenging realities*, Cambridge: Polity Press.

⁷ Finnish participation was separately funded by the Finnish Ministries of Education and Culture and of Transport and Communications.

conducted directly with children aged between 9 and 16 from 25 countries across Europe (see Figure 1).

Figure 1: Countries surveyed by EU Kids Online



1.2. This report

The first results of this project were published in January 2011 as *EU Kids Online Deliverable D4: Core findings*. That report⁸ provided a comprehensive overview of descriptive findings of the survey, including comparisons between children of different ages and gender as well as between different countries.

Based on these descriptive findings **this report presents the findings for EU Kids Online Deliverable D5: Statistical analysis. This explores the complex relations among the variables to identify groupings of children, test hypotheses and explore particular areas of interest and policy relevance, including the nature of children's resourcefulness and vulnerability and the benefits of parental mediation and other safety practices.** In doing so, the perspective of this report is on investigating general hypotheses within the field. Comparisons between countries are made in order to find out whether these hypotheses hold in different cultural settings. A systematic comparison between the countries involved in the study, which aims at explaining country differences and in identifying country clusters, is

⁸ See 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.

presented in a parallel report, published simultaneously: Lobe, B. et al, (2011) *Cross-national comparison of risks and safety on the internet*. That report examines cross-national differences in children's experiences of the internet in Europe, depending on the country they live in.

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 discussion of the policy implications of these individual and country-level comparisons of children's experiences.

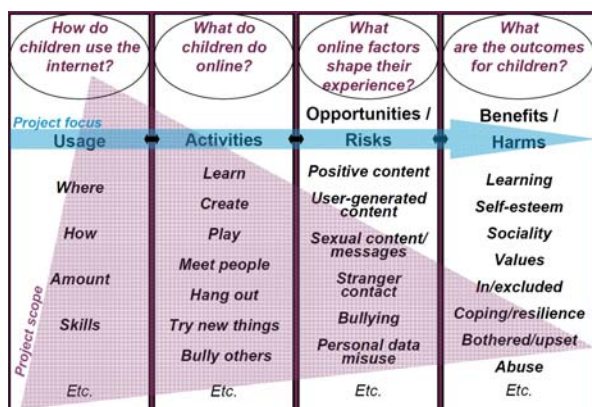
Referring to the previous report, the following sections describe the theoretical basis of the questionnaire that was used as well as the methodological procedures. In addition, in order to make this report self-explanatory, some of the descriptive findings as presented in the earlier report are taken up again. Different members of the network have conducted the statistical analyses themselves. Starting from a common conceptual framework (see Section 1.3), small groups of network members focused on specific areas and hypotheses within the broader research field. The results of their analyses will be published in more detail in forthcoming book. This report is partly based on the draft chapters for this book, and the authors are mentioned at the beginning of the respective sections. In addition, some members of the network have published short reports dealing with concrete questions of particular political relevance;⁹ these results have also been included in this report.

1.3. Framing the project

In order to contextualise both the opportunities and risks to children associated with the internet, the *EU Kids Online* project **proposes a path that traces how children's internet use and activities, being shaped by online and offline factors, may have harmful as well as beneficial outcomes for children**, as argued in Livingstone et al (2011) (see Figure 2).

⁹ Görzig, A. (2011) *Who bullies and who is bullied online? A study of 9-16 year old internet users in 25 European countries*; also 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*. LSE, London: EU Kids Online

Figure 2: Possible consequences of online activities



We begin by examining the range of ways in which children use the internet, recognising that this varies by the location and device for going online, the amount of use and the digital skills a child has at his or her disposal. Children's use is hypothesised to depend on the socioeconomic status (SES) of their household as well as on their age, gender and, of course, country.

Second, we recognise that once online, children do many things that, crucially, cannot in and of themselves be described as 'beneficial' or 'harmful', for such judgements depend on the outcome of the activity rather than the activity itself. Some activities are likely to prove beneficial (for example, schoolwork) and others seem more negative (for example, bullying others). Many, however, are indeterminate (for example, downloading music, making new friends online). Some activities are motivated by a desire to take risks, for in this way young people explore the boundaries of their social world, learning through transgressing as well as adhering to social norms and so building resilience.

In the *EU Kids Online* survey, following the questions on internet use, children were asked about their online activities, thereby acknowledging their agency in choosing how to act online and how to embed the internet in their daily lives.¹⁰ These activities may vary by demographic and country variables, as examined in this report.

Third, it is recognised that when children go online, they do so in a particular environment (see opportunity and risk factors in Figure 2). They engage with certain services.

The online interfaces they visit have their own character. Some contents are more available or easier to access than others. Crucially too, many other people are already online. All these 'environmental factors' interact with the child's activities in shaping their online experiences:

- Some factors may enhance the benefits of going online: they may be labelled 'opportunities', for example, the provision of own-language creative or playful content, or a lively community of people who share one's hobby.
- Some factors may enhance the likelihood of harm from going online: thus they may be labelled 'risks', for example, the ready availability of explicit pornography or the activities of people who are aggressive, racist or manipulative.
- Some factors are ambiguous: for example, music downloading sites or video hosting sites may be fun, creative and empowering, but they may break copyright, or exploit intimacy or facilitate hostile interactions.

The survey investigated aspects of the online experience that may increase the risk of harm. These included exposure to pornography, the prevalence of sexual messaging and bullying and the circumstances of making new contacts online, especially if these result in meetings offline.

As the final column in Figure 2 shows, the *EU Kids Online* project examines the outcomes of internet use for children. This is the most challenging part of the project. **As marked by the shaded funnel in the figure, the scope of the *EU Kids Online* project encompasses just part of this larger picture. It traces the path from children's use and activities (experienced by most European children), through their encounters with factors hypothesised to increase the probability of harm (these are likely to be experienced by a smaller proportion of children). Finally, the project examines the outcomes for children in terms of subjective harm or, more positively, coping by children encountering these risk factors (hypothesised to affect an even smaller proportion of children).**

The relation between the third and fourth columns in Figure 2 is complex. For some risks, the harm seems all but inevitable – bullying, for example, may be a factor in a child's life that, if it occurs, seems very likely to result in some degree of harm. Exposure to pornography, however, is considered harmful by some but, for others, whether harm results will depend on the circumstances.

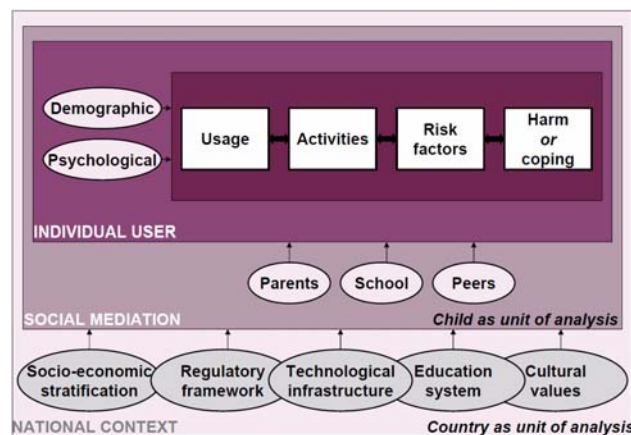
¹⁰ Bakardjieva, M. (2005) 'Conceptualizing user agency', in *Internet society: The internet in everyday life*, London: Sage. Publications, pp 9-36.

To the extent that there is a gap between experiences of risk and experiences of harm, different explanations of the two may apply. For example, lonely children may be more likely to be bullied and more likely to be adversely affected if bullied. However, boys may be more likely to be exposed to pornography (that is, a higher risk) but girls may be more likely to be upset by such exposure (that is, greater harm).¹¹ The *EU Kids Online* project explores some of these contingencies.

1.4. 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 3 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 3: 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'¹²) 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, recognising that to the extent that they do not cope, the outcome may be harmful.

As shown in Figure 3, 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, SES and psychological factors such as emotional problems, self-efficacy and risk taking.
- Social factors that mediate children's online and offline experiences, especially 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 the parallel report (see Lobe et al, 2011).

1.5. 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 accompanying annexes (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 questions;
- random stratified survey sampling of some 1,000 children (9-16 years old) 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;
- matched comparison questions to the parent most involved in the child's internet use;

¹¹ Livingstone, S. (2010) 'e-Youth: (Future) policy implications: Risk, harm and vulnerability online', Keynote at e-Youth: Balancing between opportunities and risks, University of Antwerp, May 2010 (<http://eprints.lse.ac.uk/27849/>).

¹² 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.

- measures of mediating factors – psychological vulnerability, social support and safety practices;
- follow-up questions 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).

2. ACCESS AND USAGE

What do 9- to 16-year-old children in Europe say about how they use the internet? The face-to-face interviews with children included a range of questions about 'using the internet'. As was emphasised throughout the interview, 'using the internet' refers to any and all devices by which children go online, and it includes any and all places in which the child goes online.

Levels and patterns of usage are important in understanding risks as well as opportunities because they shape the context within which children are exposed to risk factors and for which policy needs to ensure appropriate safeguards are in place. Importantly, levels and methods of access are increasing and diversifying, so that safety policy in turn needs to broaden and diversify to keep up with trends in this fast changing arena.

In order to better understand patterns of usage as well as their determinants and their consequences, the following sections deal with the following questions:

- Which children are fully online? (Section 2.1)
- How do children 'domesticate' the internet? (Section 2.2)
- Which online opportunities do children use? (Section 2.3)
- How are online skills distributed in different groups? (Section 2.4)
- How do young people deal with privacy issues? (Section 2.5)
- What is the motivation for experimenting with self-representations on the web? (Section 2.5)
- What are the determinants of excessive internet use? (Section 2.6)
- Which overall patterns and types of online use can be identified? (Section 2.7)

2.1. Which children are fully online?¹³

Research with adults shows that those who are disadvantaged in traditional, offline ways also tend to be disadvantaged when it comes to engagement with information and communication technologies (ICTs), such as the internet. It is often argued that digital exclusion is less of an issue among younger generations, echoing the idea of the 'digital native' that argues that young people are able to effortlessly and naturally survive within a digital world. This belief is strong and runs counter to existing empirical evidence.

In the following we examine **to what extent patterns of digital exclusion in terms of access can be observed among young people** who have had some exposure to the internet.

Over the last decade digital exclusion research has moved from a dichotomous distinction between no access and access to more nuanced discussions that centre round gradations of inclusion. For a population where some form of internet access is relatively widespread, this is a particularly useful approach. For example, European children tend to have access somewhere and it is likely to be the type and levels of access that differ between groups of children and not whether or not they have access. To incorporate these nuances, **we use the term *digital difference* instead of exclusion, defined as a situation where groups of young people are likely to have access that varies in ubiquity, quality and the level of privacy that it affords.**

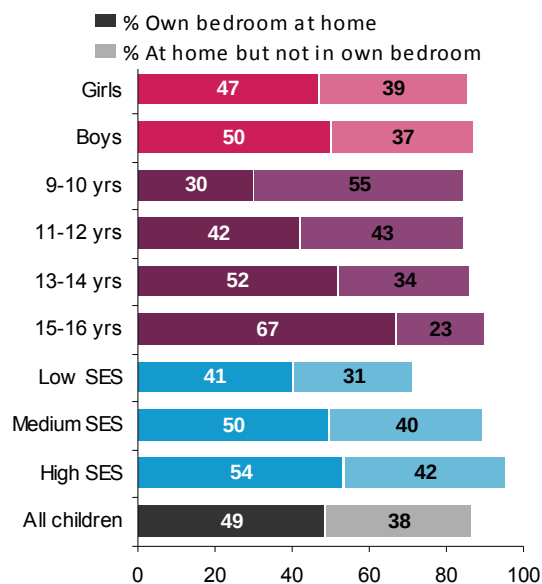
As the descriptive findings of the *EU Kids Online* survey have shown, **the most common location of internet use is at home.** Figure 4 shows the contrast between use at home in private spaces (own bedroom) and use only in public rooms (although it should be noted that use in a bedroom may itself mean use in a room shared with other siblings). The percentages for use in public rooms include

¹³ This section is based on analyses conducted by Ellen Helsper.

only children who do not use the internet in their bedroom (that is, they do not access it in a private space at home). However, it is possible, even likely, that those who use the internet in their bedroom may also use it elsewhere at home, thus the finding for 'own bedroom' identifies all those who can use the internet in a private space.

- **Private use in the child's bedroom is strongly differentiated by age** – for younger children use is generally in a public room; for teenagers it occurs more often in private.
- **The differences in access/use by SES are notable** – both the overall difference in access at home (only 72% of children from low SES homes use the internet at home compared with 96% of those from high SES homes) and the difference in access from own bedroom (41% versus 54%).¹⁴

Figure 4: Children's use of internet at home



QC301a, b: Looking at this card, please tell me where you use the internet these days.

Base: All children who use the internet

Source: Livingstone et al (2011)

¹⁴ As already noted, there is an association between the SES classification and countries, since an absolute measure of SES was used. Thus throughout this report, SES differences may also reflect country differences.

In a more comprehensive analysis of the role of demographic variables on the ubiquity of online access we calculated regression analysis. Two dependent variables measuring the ubiquity of access were operationalised as the number of locations where the respondents go online, and the number of devices that are used for using the internet. An additional underlying idea in both measures was that access can be more or less supervised or public as well as more or less mobile. Therefore, two additional measures were constructed, one that examined the level of privacy in home access that the child might have (0 = 'No home access', 1 = 'Access in a shared space', 2 = 'Access in the bedroom') and the sophistication of the mobile access that the child has (0 = 'No mobile access', 1 = 'Access on a simple mobile phone', 2 = 'Access on a smart phone').¹⁵

Independent variables were age and gender as well as the level of education of the parents, measured according to the ISCED¹⁶ classification of four categories: 1 = Primary or less, 2 = Lower secondary, 3 = Upper and post-secondary and 4 = Tertiary education.

Table 1: Influence of demographic factors on forms of online access (linear regressions, beta-weights)

	Education	Gender (girls)	Age
Number of locations	0.110	-0.014	0.239
Number of platforms	0.074	-0.063	0.153
Privacy home access	0.173	-0.020	0.223
Sophistication of mobile access	0.068	-0.027	0.216

Base: All children who use the internet

Table 1 shows that in Europe, **education, age and gender have a significant impact on all indicators of access**. Children from households with higher educational levels have access to more locations and platforms, more private access and more sophisticated mobile access.

¹⁵ From a statistical point of view the measures constructed here are not continuous measures. Nevertheless, in order to explore the relations between the variables regression analyses have been performed. Due to the above limitations the size of the beta coefficients should be merely taken as indicative.

¹⁶ International Standard Classification of Education (ISCED)



Boys have access to more locations, more platforms, more private access and more sophisticated mobile access.

Older children have access to more locations, more platforms, more private access and more sophisticated mobile access.

Looking at standardised coefficients, the effect size is largest for the number of locations that they have access to and the level of privacy in their home access. Age is in all cases the strongest predictor, followed by education and then by gender.

2.2. How do children 'domesticate' the internet?¹⁷

One very general question, but one nevertheless providing a context for later discussions of risk and harm, is captured in the 'domestication' approach. This framework is concerned with, among other things, how the internet fits into children's lives, meaning, how much and in what ways it is integrated into their everyday routines. Moreover, what processes might affect the degree to which and ways in which it is becoming embedded in their lives? When looking at modes of access and amount of use, the framework becomes especially salient because of its focus on the time children make available for using the internet and the implications of accessing the online world from different spaces. Another aspect to be analysed here is the question, to what extent parents' online behaviour, which can be regarded as a highly important characteristic of children's media environment, influences their children's patterns of online use.

Places and platforms of use

Compared to the previous 2008 survey by Eurobarometer, the number of locations from which the internet is accessed has increased, although significant country variations persist. **In keeping with the literature showing the growth of children's 'bedroom culture', roughly half of children now access the internet from their own bedrooms (49%) or from a friend's home (53%)** (see Table 2). This has clear implications for parents' ability to directly monitor what their children do in

these private spaces. On the other hand, such 'private' access, in the sense of private from parents, does not mean that children's use is unconstrained. When turning to the question of the device most often used, it is a 'shared computer' (58%), reflecting the fact that it may be a shared computer not only in a relatively public space within the home such as a living room, but also shared by siblings even in bedrooms. This has the implication that children may still have to negotiate access, not only with parents but also with each other, hence 'private' access does not necessarily imply 'unrestricted' access.

Table 2: 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 days. *(Multiple responses allowed)*

Base: All children who use the internet

Source: Livingstone et al (2011)

The increasing privatisation of internet use, driven by locations or platforms, does not automatically mean individualisation. Friend's home is listed by half of the sample (53%) as an ordinary location of internet use, thus showing that **online activities are increasingly becoming a relevant part of the playtime that children spend with peers.** The internet is relevant for socialising among peers in two ways: it supports forms of 'perpetual contact' that extend face-to-face encounters beyond physical proximity, and it is a resource for co-present interaction, when it is shared in face-to-face meetings with friends.

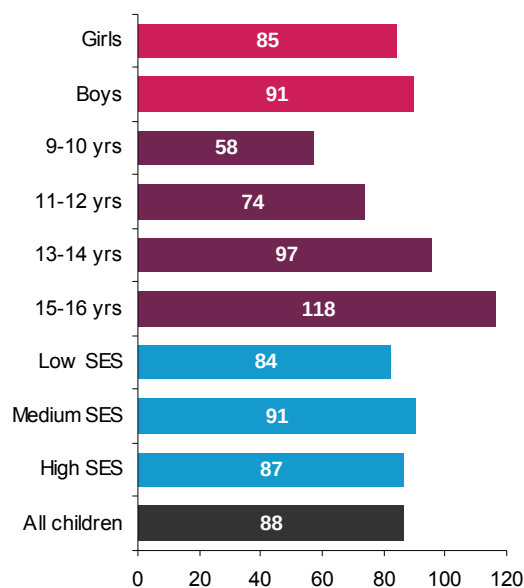
¹⁷ This section is based on analyses conducted by Giovanna Mascheroni, Maria Francesca Murru and Anke Görzig.

Amount of use

The falling age at which children go online (according to our survey, nine years old on average) and the high frequency of use (93% going online at least weekly) can both be seen as evidence that the internet is in general becoming more embedded in children's lives. Differentiating between children, it is still the case that this integration appears to be greater for older children, in their teens, who go online much more frequently and spend a much longer time online overall.

A further indicator of the process of incorporation is the amount of time spent online daily. **Children aged 9-16 spend online an average of an hour-and-a-half (88 minutes) per day** (see Figure 5). The largest differences in the amount of daily use are by age: if younger children spend around one hour (58 minutes), older teenagers spend nearly two hours online (118 minutes).

Figure 5: 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?

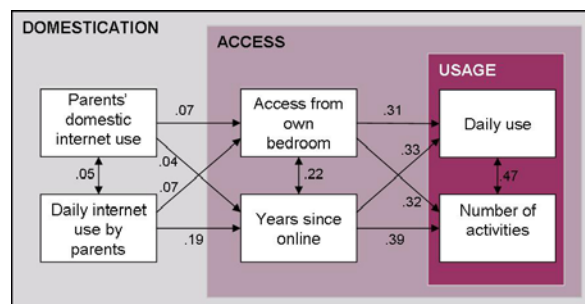
Base: All children who use the internet

Source: Livingstone et al (2011)

Explaining access and usage

While the literature on the digital divide tends to focus on social inequalities and socio-demographic variables to explain varieties in access and use, the domestication perspective emphasises how technologies are variously negotiated and domesticated in different social contexts. In order to untangle the process of domestication, we first explored the correlations between different factors that shape the social context of internet use: (a) domestication: parents' domestic access (yes/no) and parents' daily use (yes/no); (b) children's quality of access – access from own bedroom (yes/no) as an indicator of the process of privatisation and children's incorporation of the internet – expressed by years since first went online; and (c) children's frequency and quality of use: children's daily use of the internet (yes/no) and average number of online activities (total 17).¹⁸ To test this theoretical model, a series of correlations are displayed in Figure 6, which shows the correlations that predict children's daily use at the European level.

Figure 6: Relations between parents' internet use, children's access, and amount of use



Note: $p < 0.01$, 2-tailed, for all correlations.

Parents' domestic internet use is positively associated both with children's access from their own bedroom and with years since the child was online. Both associations are small but statistically significant (r 's = .07 and .04). **Daily internet use by parents** also shows a small and significant association with child's bedroom access (r = .07) and a more sizable association with years since the child was online (r = .19). These outcomes suggest that parents' domestic use and more so frequency of use are related to children's access.

¹⁸ For an overview of the online activities in the questionnaire see Section 2.3.



Children's daily use is interrelated with online experience ($r = .33$), access from bedroom ($r = .31$) and parents' frequency of use: children with longer online experience, who benefit from unrestricted access and whose parents are regular users themselves, are more likely to use the internet on a daily basis.

Indicators of children's private access (i.e., bedroom access) are correlated with **number of activities performed online** ($r = .32$), which is also positively associated with number of years the child has been using the internet for ($r = .39$). Accessing the internet from one's bedroom and longer experience of the internet encourage a more thorough incorporation of the internet in daily lives in terms of online opportunities taken up.

Overall, it is **quality of access and long-term use which have a stronger correlation with the degree of mediatisation of children's lives**: the more the children are provided with unrestricted domestic access as in the 'bedroom culture' pattern, or with the possibility to go online from a variety of places throughout the day, and the longer they have appropriated the internet, the more activities they perform online. Therefore, quality of access and age of first use are strongly connected to the opportunities children experience online, and, consequentially, also to their exposure to risks.

Consistent with the domestication approach, correlations have shown how parents' domestic use of the internet has an association with the household's 'technological culture', which, in turn, shapes children's use. More specifically, parental domestication of the internet is positively associated with privatised access and years of online experience, this shaping the context of use; at a second level, they might indirectly mediate frequency of use and time since access and experience with the internet is correlated with higher embeddedness of the internet in children's daily lives.

Further, two stepwise logistic regression analyses were performed to include socio-demographic background variables and to test for the relations between domestication, access and usage, as shown in Figure 6. The first analysis sought to predict children's access from their own bedroom in terms of socio-demographic variables (that is, child's age, child's gender, level of education of parents as an indicator of the household's

cultural and economic capital¹⁹) and, as a second step, in terms of indicators of domestication (that is, parents' domestic use and daily use). The results show that **older children, boys and children whose parents have higher educational attainment are more likely to have private access from their own bedroom**. The odds of a child having access in their own bedroom increases by 31% for each year of age, are 10% higher for boys than girls, and increase by 8% when education increases by one point (on a 7 point scale). Further, **parents' domestic internet use appears to be the most influential predictor for children's internet access in the bedroom**: for children of the same age, gender and from a family with a similar educational background. The odds of having internet access in their bedroom are 122% higher for children whose parents use compared to those who do not use the internet at home (see Table 3).

Table 3: Logistic regression predicting children's access from own bedroom

	Model 1 (OR)	Model 2 (OR)
Child age	1.31**	1.31**
Child gender (female = 0)	1.10**	1.10**
Parent's highest education	1.08**	1.08**
Parent's domestic internet use		2.22**
Daily internet use by parents		1.01

Notes: ** $p < 0.01$; OR = odds ratio.

The second analysis focused on usage, predicting children's daily use in terms of socio-demographic variables (that is, child's age, child's gender, level of education of parents as an indicator of the household's

¹⁹ This variable was measured by a different scale within each country according to its educational system and then transferred into a standardised scale across the European countries consisting of seven categories (1 = Not completed primary education, 2 = Primary or first stage of basic, 3 = Lower secondary or second stage of basic, 4 = Upper secondary, 5 = Post-secondary, non-tertiary, 6 = First stage of tertiary, 7 = Second stage of tertiary). This education variable is not strictly continuous and also confounded with country, therefore these correlations should be considered with caution.

cultural and economic capital) and, as a second step, in terms of indicators of domestication (that is, parents' domestic use and daily use); a third step was also included, using indicators of children's internet access (that is, access from own bedroom, years since online). The results show that **older children, boys and children whose parents have higher educational attainment are more likely to use the internet daily**: the odds of a child using the internet daily increases by 49% for each year of age, are 12% higher for boys than girls, and increases by 14% when education increases by one point (of 7). Moreover, **parents' domestic internet use, access from own bedroom and years online promote daily use by children**. For children of the same age, gender and from a family with a similar educational background the odds of using the internet daily are 195% higher for children whose parents use as opposed to do not use the internet at home. For children with parents who show similar domestic and daily use of the internet as well as children of the same age, gender and from a family with a similar educational background, the odds of using the internet daily are 135% higher when the child has internet access in the bedroom. Further, the child's odds of using the internet daily increases by 28% for each additional year that the child has been online (see Table 4).

Table 4: Logistic regression predicting children's daily use

	Model 1 (OR)	Model 2 (OR)	Model 3 (OR)
Child age	1.49**	1.50**	1.30**
Child gender (female = 0)	1.12**	1.12**	1.05**
Parent's highest education	1.14**	1.14**	1.06**
Parent's domestic internet use		2.95**	2.40**
Daily internet use by parents		1.01	1.01
Bedroom access			2.35**
Years online			1.28**

Notes: ** $p < 0.01$; OR = odds ratio.

It is noteworthy that although the correlation between parental domestic use and children's daily use is small

(Figure 6), in the regression analysis – when other variables in the equation are controlled for – parents' domestic internet use emerges as the most important predictor of children's daily use.

2.3. Which online opportunities do children use?²⁰

What do European children aged 9-16 say that they do when they go online? The *EU Kids Online* survey asked children about which online activities they take up, so as to understand the opportunities they enjoy and to provide a context for the investigation of online risks.

Table 5 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 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

²⁰ This section is based on analyses conducted by Pille Pruihlmann-Vengerfeldt and Pille Runnel.

²¹ Livingstone, S. and Haddon, L. (2009) *EU Kids Online: Final Report*. LSE, 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.

Table 5: Children's activities online in the past month

	9-12 years		13-16 years		
% 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

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*. LSE, London: EU Kids Online.

Overall, we can say that of the 17 activities surveyed, children undertake nearly half of the activities (7.2; see Table 5). **The number of activities young people engage in increases with the years of age and with the years of internet use. There are gender differences, where both older and younger boys undertake a higher variety of activities than girls of the same age.** The differences of averages, while always statistically significant, are smaller when children are younger, but become more pronounced with time.

In order to analyse whether the percentages as observed in Table 5 reflect a '**ladder of opportunities**', we followed the logic of Livingstone and Helsper (2007).²³ They differentiated 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); based on the percentages in these groups five stages of activities can be differentiated (see Table 6):

- **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 mostly of visiting social networking sites, use of 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:** those who expand their activities to 10 or more opportunities are likely to engage in playing games against other people, downloading music or films, posting photos, using a webcam or posting messages on websites. These activities already include some conduct-related practices where young people become active contributors to the online environments.

²³ Livingstone, S. and Helsper, E.J. (2007) 'Gradations in digital inclusion: children, young people and the digital divide', *New Media and Society*, 9(4), 671-96.

Table 6: '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 in each group	12	23	36	19	9	100
1	Used the internet for schoolwork	68	78	87	92	95	85
	Played games on your own or against the computer	61	77	78	86	93	83
2	Watched video clips	19	61	87	97	99	76
3	Visited social networking profile	3	31	73	94	99	62
	Used instant messaging	3	29	73	94	98	62
	Sent/received emails	5	31	71	90	97	61
	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	44
	Downloaded music or films	2	17	45	75	90	44
	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	31
5	Visited chat room	1	3	19	42	80	23
	Used file-sharing sites	1	2	12	34	68	18
	Created a character, pet or avatar	1	6	14	27	58	18
	Spent time in the virtual world	1	5	12	24	57	16
	Written a blog or online diary	0	1	5	20	52	11

- **Stage 5:** 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.

It is interesting to note, however, that while analysis holds across Europe in general, each country has a slightly different ladder of opportunities – differing both according to the order in which the opportunities are taken up and the percentage of users in each stage. This points to the fact that previous findings in the UK²⁴ and for the Mediappro project,²⁵ where the hierarchy of the activities has been fairly stable, need to be analysed further, as the more young people start using the internet, the more

varied will be their paths to take up the diversity of online opportunities.

2.4. How are online skills distributed in different groups?²⁶

Moving beyond questions of access and use, the internet skills that children possess are of interest for a number of reasons. In keeping with the discussion above, by showing the capabilities children have developed, knowledge of their digital skills would provide another part of the picture of the place the internet has in their lives, including the degree to which they are able to benefit from what is possible online. Meanwhile, skills have been a key theme of digital divide discussions once those debates broadened away from access to consider people's (and children's) ability to participate in the online world. And, of course, in this report they are also of interest specifically in terms of the skills to deal with risks. In order to measure online skills *EU Kids Online* has defined three indicators.

²⁴ Livingstone, S. and Helsper, E.J. (2007) 'Gradations in digital inclusion: children, young people and the digital divide', *New Media and Society*, 9(4), 671-96.

²⁵ Kalmus, V., Runnel, P. and Siibak, A. (2009) 'Opportunities and benefits online', in S. Livingstone and L. Haddon (eds) *Kids online*, Bristol: The Policy Press, pp 71-82.

²⁶ This section is based on analyses conducted by Nathalie Sonck, Els Kuiper and Jos de Haan.



Range of online activities

The first way of measuring digital skills is based on the **range of online activities** that children reported to have done in the past month. This diversity of internet use might give an indication of children's digital skills. The underlying idea is that the more diverse activities children do online, the more experienced they might become in performing these activities, and hence the more skilled they might be on the internet. The range of online activities has been calculated on the basis of the number out of 17 activities (for details see Section 2.3) that the child had undertaken within the last month. On average children undertake 7.2 of the online activities asked. **The older the children are the broader the range of activities. Boys report a slightly bigger range of activities than girls. And children whose parents are higher educated undertake a broader range of activities.**

Specific digital literacy and safety skills

The second way to measure digital skills included in the survey is a self-report of children's *specific digital literacy and safety skills*. To this end, children were asked to assess their own skills, and more specifically, whether they are able to do any of a list of eight different skills, including instrumental (mainly safety-related) and informational skills. Children's self-reports about their skills might give an indication of their actual digital skills, although this measure may be prone to over- and under-estimation.

Table 7 shows that children between 11 and 16 years old report most frequently that they have mastered the skills necessary for bookmarking a website, blocking messages from people and finding safety information. In contrast, children say that they are least likely to be able to change filter preferences. European children say that they are able to do on average about half (4.2) of the skills surveyed. **The older the children are the higher the self-reported skills. Boys report slightly more skills than girls. And children whose parents are higher educated are more skilful.**

Table 7: Children's digital literacy and safety skills

	11-13 years		14-16 years		
% who say they can...	Boys	Girls	Boys	Girls	All
Instrumental/safety skills					
Bookmark a website	56	52	73	72	64
Block messages from someone you don't want to hear from	51	53	75	74	64
Change privacy settings on a social networking profile	41	44	69	69	56
Delete the record of which sites you have visited	42	37	67	61	52
Block unwanted adverts or junk mail/spam	41	39	65	57	51
Change filter preferences	19	16	46	31	28
Informational skills					
Find information on how to use the internet safely	54	51	74	70	63
Compare different websites to decide if information is true	47	44	67	63	56
Average number of skills	3.4	3.2	5.2	4.8	4.2

QC320a-d and QC321a-d: Which of these things do you know how to do on the internet? Please say yes or no to each of the following.... If you don't know what something is or what it means, don't worry, just say you don't know.

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

Source: Sonck et al (2011)

Children's beliefs in their internet abilities

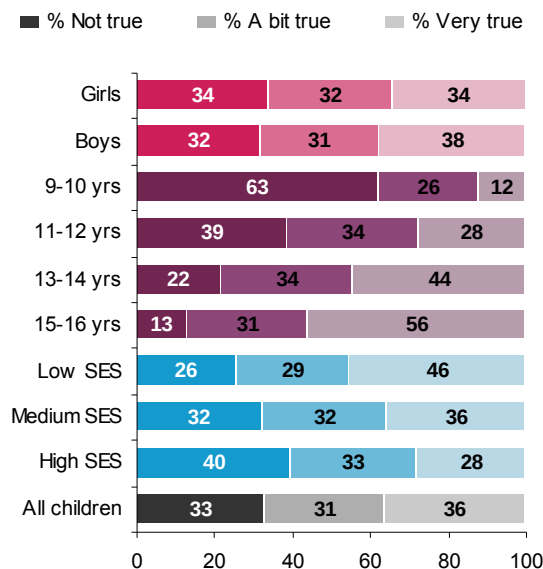
The third way to get insight into children's digital skills is to ask about their *beliefs in their internet abilities*. In the survey, two items were included about children's estimated knowledge about the internet. The first asks to what degree children estimate that they know more about the internet than their parents, while the second specifically asks about their own knowledge of the internet. As these items do not seem to measure exactly

the same thing, the research focused only on the second item. This corresponds most closely with the concept of self-assessment or ability for self-perception.²⁷ Only 12 per cent of the children negate the statement that they know a lot of things about the internet, 49 per cent say it is a bit true and for 39 per cent it is very true. But similar to the self-reported skills, it might also be subject to over- and under-estimation.

As for the other indicators, older children seem more confident than younger children, boys more than girls. However, for this item there is no clear relation with the parents' education; given the fact that children with higher educated parents had reported more skills and a broader range of activities, this finding is surprising.

One explanation for this can be found in the results on the other indicator mentioned above, which asks for the children's relative internet abilities compared to their parents. Figure 7 shows that about one-third of all children believe that they do *not* know more about the internet than their parents. While it is highly plausible and in line with the other indicators **that younger children are less likely to claim more knowledge than their parents**, the interesting finding here is that **children from a higher SES background are less likely to believe, that they know more about the internet than their parents, than children from low SES homes**. This finding points to children's awareness of the digital skills of their parents, that is, either lower digital skills of their parents for those from low SES homes or higher digital skills of their parents for those from high SES homes or both.

Figure 7: 'I know more about the internet than my parents'



QC319a: How true are these of you? I know more about the internet than my parents. Please answer not true, a bit true or very true.

Base: All children who use the internet

Source: Livingstone et al (2011)

Relations between the different skills

The three different self-reports about skills, diversity of use and beliefs in internet abilities illustrate that European children between 11 and 16 years old report mastering a fair level of digital skills. At the same time, there is still room for improvement, such as in broadening the range of activities that children do online or in performing particular tasks on the internet.

The three approaches taken in this report assess children's skills implicitly (by asking about their activities), explicitly (by asking about particular skills) and holistically (by asking for the overall belief in internet abilities). How do these measures relate to each other?

- **Activities, skills and beliefs in internet abilities are all positively associated.** In short, the more children do online, the more skills they have and the more they judge that they know a lot about the internet. Or the more skills and/or beliefs in their own abilities children have, the greater the range of online

²⁷ See Eccles, J., Wigfield, A., Harold, R.D. and Blumenfeld, P. (1993) 'Age and gender differences in children's self- and task perceptions during elementary school', *Child Development*, 64(3), 830-47; Eccles, J.S., O'Neill, S.A. and Wigfield, A. (2005) 'Ability self-perceptions and subjective task values in adolescents and children', in K. Moore and L.H. Lippman (eds) *What do children need to flourish? Conceptualizing and measuring indicators of positive development*, New York: Springer Science, pp 237-49; Kruger, J. and Dunning, D. (1999) 'Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments', *Journal of Personality and Social Psychology*, 77(6), 1121-34.

activities they undertake. But the converse is also the case – the less of one of these, the less likely the others.

- **The highest association is between activities and skills** ($r=0.55$). Beliefs in internet abilities are less strongly but still significantly related either activities ($r=0.36$) and skills ($r=0.43$).²⁸

This suggests that by increasing or improving one of these factors the others might perhaps also improve. For example, increasing children's online activities might improve children's specific skills set as well as their overall confidence and/or increasing children's beliefs in their abilities to use the internet might increase the range of their online activities as well as improve their specific internet skills set.

Differences between children and between countries

Differences in digital skills do not only occur between children, but also between the different countries within Europe. Children in Finland, for example, report the highest level of digital skills in Europe, and have an above-average level of confidence, but undertake an average range of activities online. Children in Lithuania, on the other hand, use the widest range of online applications, but report scores slightly above the European levels of skills and self-confidence. Although children in Ireland show an average level of self-reported skills and beliefs in their own abilities, they report the smallest range of online applications in Europe. In Turkey, all three measurements of digital skills are rather low.²⁹

Despite these differences regarding the level of online skills, the correlations with demographic variables are very similar in all countries and correspond with the above findings. This observation also holds for the patterns of correlations between the three indicators for online use; in all countries there are substantial positive correlations.

Within countries children differ in their level of digital skills, regardless of whether it is measured by a self-report, the range of online activities or the beliefs in their internet abilities. These differences between children might point to a '**second-level digital divide**', which Hargittai (2002) defines as a divide due to varying

levels of online skills or children's ability to cope with the demands of the highly digitalised society.³⁰ **This divide does not refer to having or not having access to the internet, but instead focuses on the degree of internet skills required to participate in society.** As has been shown above, after controlling for country differences in social inequality and internet usage, children's self-reported skills are especially related to age. Older children say they master more skills, use more online applications and report stronger beliefs in their abilities compared to younger children. In comparison with age, the influences of gender and socioeconomic family background on self-reported skills are rather small. Boys and children whose parents are higher educated report more skills and a wider repertoire of online activities.

2.5. How do young people deal with privacy issues?³¹

Although visiting a social networking site is not quite the most popular online activity – 62% of European 9- to 16-year-olds did this in the last month (see Table 5) – it is arguably the fastest growing online activity among young people. Certainly, social networking sites have attracted widespread attention among children and young people, policy makers and the wider public. By integrating chat, messaging, contacts, photo albums and blogging functions, social networking sites potentially integrate online opportunities and risks more seamlessly than has previously been possible.

As the earlier report on descriptive findings has shown (see Figure 8), 59% of all 9- to 16-year-olds across Europe report they have their own social networking profile. This indicator does not vary substantially by gender and SES age is obviously a highly important factor: one-quarter (26%) of the 9- to 10-year-olds report having their own profile, compared with half (49%) of 11- to 12-year-olds. For teenagers, percentages are much higher – 73% of 13- to 14-year-olds and 82% of 15- to 16-year-olds.

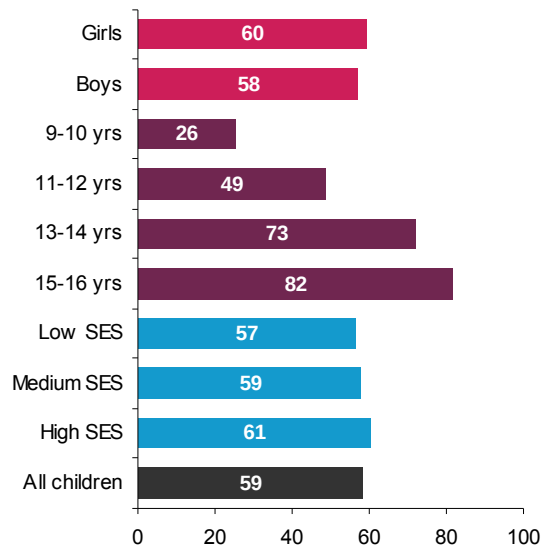
²⁸ Correlations were tested using Pearson's r ; they are significant at $p<0.001$.

²⁹ For more details see Sonck, N., Livingstone, S., Kuiper, E. and de Haan, J. (2011) *Digital literacy and safety skills*, LSE, London: EU Kids Online.

³⁰ Hargittai, E. (2002) 'Second level digital divide: differences in people's online skills', *First Monday*, 7(4).

³¹ This section is based on Livingstone, S., Ólafsson, K. and Staksrud, E. (2011) *Social networking, age and privacy*. LSE, London: EU Kids Online.

Figure 8: Children who have a profile on a social networking site



QC313: Do you have your OWN profile on a social networking site that you currently use, or not?

Base: All children who use the internet

Source: Livingstone et al (2011)

Parental restrictions on social networking site usage

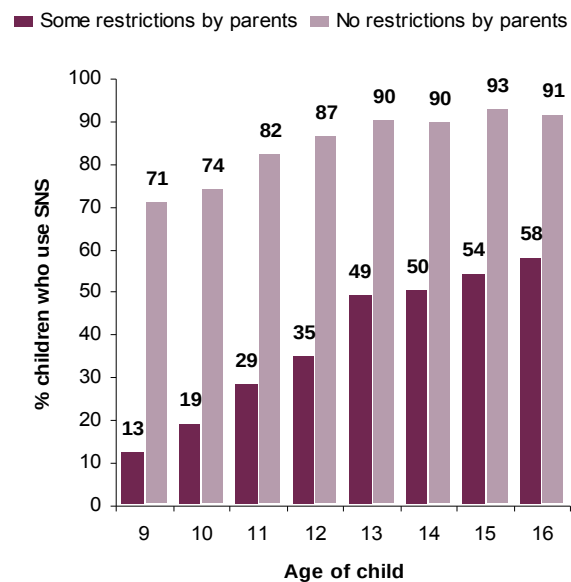
Due to considerable public debates on the possible risks linked to social networking sites, their use has become a particular **issue of restrictive parental mediation**. **One-third (32%) of parents of the children surveyed say their child is not permitted to have a social networking site profile. A fifth (20%) say their child can only use social networking sites with supervision. Half say they do not restrict their child's use of social networking sites.**

Additionally, there is a close relation between parental restrictions, age, and whether children have their own social networking site profile (see Figure 9).

- **Among children whose parents impose no restrictions, most have a social networking site profile, including three-quarters of the youngest ages.**
- However, among those whose parents restrict their social networking site use, the **age difference is marked**. Younger children appear to respect parental regulation and, for the most part, do not have a profile at all. However, among teenagers whose parents

restrict their use, over half do have a profile. For some, this is in opposition to a parental ban; for others, their use is subject to parental monitoring.

Figure 9: Children's use of social networking sites by age and whether parents regulate their use



QP221d: Whether child is allowed to do this all of the time, only with permission/supervision or never allowed: Have his/her own social networking profile. QC313: Do you have your own profile on a social networking site that you currently use, or not?

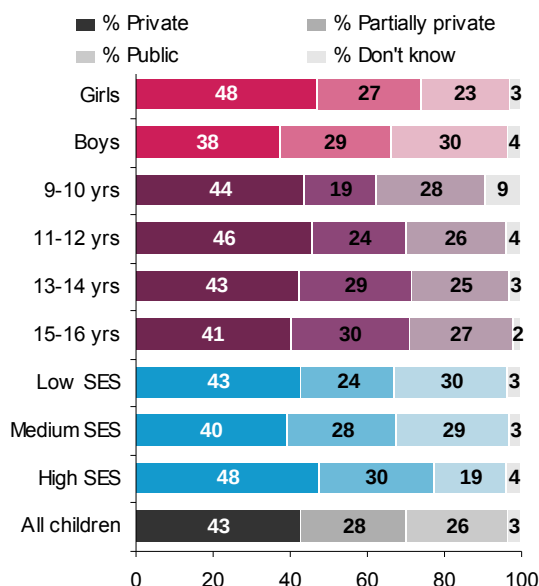
Base: All children aged 9-16 who use the internet and one of their parents

Source: Livingstone, Ólafsson and Staksrud (2011)

Privacy settings

Figure 10 shows that among children with a social networking site profile, their privacy settings (for their most used social networking profile) vary by gender, age and SES. Recall that, as shown in Figure 8, this includes one-quarter of 9- to 10-year-olds rising to four-fifths of 15- to 16-year-olds.

Figure 10: Children's use of social networking site privacy settings



QC317: Is your profile set to...? Public, so that everyone can see; partially private, so that friends of friends or your networks can see; private so that only your friends can see; don't know.

Base: All children who have a profile on a social networking site

Source: Livingstone et al (2011)

- Among social networking site users, **43% keep their profile private** so that only their friends can see it. A further **28% report that their profile is partially private** so that friends of friends and networks can see it. Notably, **26% report that their profile is public so that anyone can see it**.
- Girls, and children from higher SES homes, appear more likely to keep their social networking site profile private.**
- As further analyses show, 14% of the profiles include address and telephone number and 16% pretend a wrong age (see Livingstone, Ólafsson and Staksrud, 2011).

Digital safety skills

Given the possible risks, as well as the many opportunities afforded by social networking, and since much social networking site usage occurs away from adult supervision, children's own digital skills are crucial. This includes **children's ability to use the safety features embedded in the sites**, although their skills in this

respect are partly dependent on the usability of the features themselves.

As previously noted, the availability and usability of safety features for social networking sites is an important component of the European self-regulatory guidance. Table 8 shows children's self-assessed ability to change their privacy settings as well as their ability to block other users.

Table 8: Children's ability to use safety features

	Change privacy settings			Block another user		
	% 11-12	% 13-14	% 15-16	% 11-12	% 13-14	% 15-16
All social networking sites	56	71	78	61	75	81

QC321: And which of these things do you know how to do on the internet?

Base: All children aged 11-16 with a profile on the named social networking site

Source: Livingstone, Ólafsson and Staksrud (2011)

- Just over half of the 11- to 12-year-olds rising to over three-quarters of the 15- to 16-year-olds know how to change the privacy settings on their profile.** As Livingstone, Ólafsson and Staksrud (2011) show, children's ability to manage privacy settings vary somewhat by social networking site, suggesting differences in design, but none of the social networking sites stands out as particularly successful in providing settings that children can manage.
- A similar lack in knowledge, among younger children especially, is evident in relation to **children's ability to block another user**, a vital skill should a user become unpleasant or abusive. While 61% of the younger children, rising to 81% of the older children, know how to block other users, this leaves a substantial minority who cannot do this.

Children's social networking site contacts

With regard to possibilities of risky or harmful encounters when using social networking sites, in what follows we consider three *possible* indicators of risk:

- the percentage of children, by age, who have more than 100 contacts on their social networking site

profile, taking this as indicative of some degree of risk;

- the percentage of children, by age, who are in contact online with people whom they first met online and who have no connection with their daily lives;³²
- the percentage of children, by age, who on their social networking site profile disclose information that can be used to identify them.

In examining each of these, we acknowledge that these practices (having many contacts, meeting new people and disclosing personal information) can be fun and harmless, and may be part of the pursuit of online opportunities. Yet since opportunities and risks often go hand in hand, in the present context we consider them as part of the discussion of risk associated with social networking site use.

First, Table 9 shows which children have more than 100 contacts on their social networking site profile and how many children communicate via a social networking site with people they have not met face-to-face.

Table 9: Number and characteristics of children's contacts

	% 9-12 years	% 13-16 years
Children with 100+ contacts	15	35
Children's contact with people online that they have not met face-to-face	19	28
Profile includes address and/or telephone number	12	15
Profile includes school	34	47

QC316: Roughly how many people are you in contact with when using [social networking profile]? QC310: Had contact with people – first met on the internet, but who have no other connection to your life outside of the internet. QC318: Which of the bits of information on this card does your profile include about you?

Base: All children aged 9-16 with a profile on a social networking site

Source: Livingstone, Ólafsson and Staksrud (2011)

³² Across all forms of online communication, 30% of European children have had contact with someone online they have not met face to face; see 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.

- Generally, **older children are more than twice as likely to have 100+ contacts** compared with younger children.
- **One in four social networking site users has contacts via a social networking site with people they have not met face to face.** In most countries this activity is more prevalent among 13- to 16-year-olds than with 9- to 12-year-olds.
- Around **half of the children** who use social networking sites say that they **have included at least one of these three things on their social networking site profile: their address, their telephone number or the name of their school.** By far the most common is the name of their school. This finding has to be interpreted against the background that some sites are structured around users' school affiliation.
- Given that younger children are more likely to have their profile set to public it is reassuring that they are slightly less likely to disclose their address, telephone number or the name of their school on their profile.

2.6. What are the determinants of excessive internet use?³³

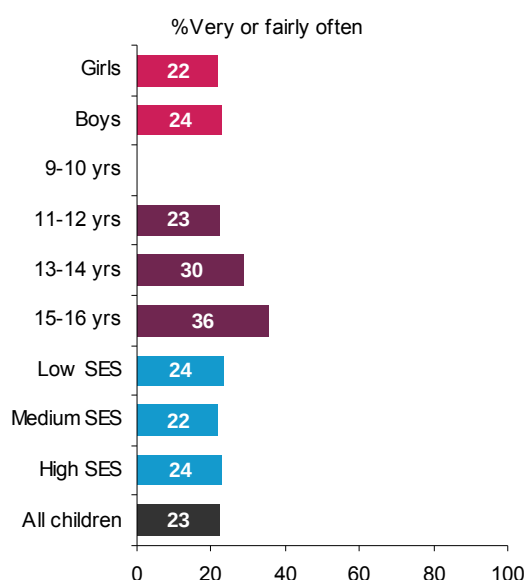
Although there are various studies referring to this area as 'internet addiction', it is only one of the words used, and indeed it is one that has problematic medical connotations. Hence 'excessive use' is the preferred term in this report. The analysis draws on an established scale, asking whether the child has unsuccessfully tried to spend less time online, whether the internet led to them spending less time than they felt they should with family and friends, whether they caught themselves surfing when not really interested, whether they felt bothered when they could not use the internet and whether they had gone without eating or sleeping because of the internet. In the *EU Kids Online* survey only 11 to 16 year olds were asked these questions and the response options for these items ranged from 1 (never) to 4 (very often). This resulted in an average score of 1.45 (SD = .55) across all children and the reliability of this scale was Cronbach's alpha = 0.77. Past studies had not been able to agree on the prevalence of excessive use due to differences over the issue of where to have a cut-off point, but they did provide the basis for a number of hypotheses about who has these experiences.

³³ This section was written by David Šmahel and Lukas Blinka.

As a first approach we built a composite index – the percentage of children, out of all children, who answer ‘fairly’ or ‘very often’ to one or more of these five experiences. Figure 11 shows the results by demographic variables.

- This reveals no differences by SES of household, and **only a marginal difference by gender**, with boys being only slightly more likely to report one or more of the factors of excessive use (24%, compared with 22% of girls).
- **Differences by age are more marked**, with one-quarter (23%) of 11- to 12-year-olds, rising to over a third (36%) of 15- to 16-year-olds, experiencing excessive internet use.

Figure 11: Child has experienced one or more form of excessive internet use fairly or very often (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 mentioned in the text.

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

Source: Livingstone et al (2011)

In order to test more complex hypotheses on determinants of excessive internet use a stepwise regression analysis has been performed with the score on the excessive internet use scale as the dependent variable and three blocks of independent variables:

- age and gender;
- psychological variables: self-efficacy³⁴, sensation seeking³⁵, psychological difficulties³⁶,
- offline and online behaviours: Risky offline activities³⁷, meeting new people, bullying others, sending sexual messages.

Table 10: Linear regression: factors associated with excessive internet usage (beta weights)

	Model 1	Model 2	Model 3
Age	0.17**	0.15**	0.08**
Gender (female=0)	0.03**	0.01	0.01
Self-efficacy		0.02*	-0.00
Psychological difficulties		0.27**	0.24**
Sensation seeking		0.16**	0.10**
Risky offline activities			0.10**
Meeting new online contacts offline			0.08**
Bullying others online			0.08**
Sending sexual messages to others online			0.04**
Frequency of internet use			0.15**
R ²	0.03	0.15	0.20
F	188.02**	416.79**	305.99**
ΔR ²	0.03**	0.12**	0.06**

** p < .001; *p < .05

As Table 10 shows, **being older is associated with excessive use**; this may be partly a result of mediation practices, because older children are monitored less (see Section 4.1). Despite the image of the ‘male nerd’ being

³⁴ Measured by a four-items scale adapted from Schwarzer, R. & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON; $\alpha = 0.65$ (see Annex 3).

³⁵ Two-items scale adapted from Stephenson, M.T., Hoyle, R.H., Palmgreen, P. and Slater, M.D. (2003) ‘Brief measures of sensation seeking for screening and large-scale surveys’, *Drug and Alcohol Dependence*, 72(3), 279-86; $r = 0.64$, $p < 0.001$ (see Annex 3).

³⁶ 16-items scale adapted from Goodman's SDQ (1998), using items measuring psychological difficulties only; $\alpha = 0.71$ (see Annex 3).

³⁷ Number out of five Risky offline activities (see Annex 3).

prone to excessive use, past studies found **no gender differences**; this is confirmed by our results showing that boys are only very slightly more likely to report excessive behaviour than girls and this difference disappears when controlling for psychological factors.

In terms of psychological factors, the study found support for previous research showing that **those with psychological difficulties and those seeking sensations are more likely to show symptoms of excessive use**, with the first of the two being more influential. Self-efficacy is also associated with slightly higher excessive use; however, this effect disappears when controlling for use, offline risks, meeting new online contacts offline and online perpetrator behaviours (i.e., bullying others and sending sexual messages to others).

The relation to other offline and online risks has seldom been studied in past research, but this study confirmed an association with sending sexual messages, bullying others via the internet, and meeting new contacts offline who had first been met online, the association being strongest in the latter two cases. Again supporting previous studies, there is a connection between excessive use and offline risk taking.

2.7. Which patterns and types of online use can be identified?³⁸

The discourse on opportunities and risks of the internet for children and young people tends to construct the internet as something external, as something with a given set of characteristics, which have positive or negative effects on children. However, given the multitude of all kinds of online services, *the* internet – or the quantity of use of *the* internet – cannot serve as a meaningful indicator for young people's everyday experiences. The existing forms of online services are so heterogeneous that we may expect substantial inter-individual differences in how young people make use of the internet and thus which kinds of online environments they experience.

While previous sections have dealt with certain aspects of children's online use and how they are related to demographic or psychological variables, the objective of this section is to identify **comprehensive patterns of children's online use**. These patterns provide the basis

for a typology of young online users. In building a typology we try to find a balanced solution for the following conflicting objectives: On the one hand, the concrete online practices as presented so far are so diverse and inter-individual differences are so substantial that a meaningful interpretation of young people's online opportunities and risks requires attention to be paid to very small groups or even individuals and their specific contexts and behaviours. On the other hand, our research sets out to reduce the complexity of the field and to provide empirical findings that allow for more general conclusions and recommendations.

Identifying user types

The indicators for children's online use that have been assessed in the *EU Kids Online* survey include the following aspects.

The two most prominent empirical indicators of research in media use, that is, **frequency** and **amount of use** of a specific medium, provide plausible information on the quantitative presence of the internet in young people's everyday life. These indicators reflect the temporal resources that children and young people devote to online activities and thus define the temporal frame for more or less opportunities and risks. On the one hand, these indicators reflect – at least to some extent – young people's interests and needs. Those who expect more gratifications and experience more opportunities from using the internet will spend more time on it. In doing so they are also plausible predictors of online risk. With increasing time spent online the likelihood of negative experiences should increase; the same should be true for opportunities. Frequency and amount of use are substantially correlated ($r=0.44$); because the frequency variable only provides a very rough measure – 60% say they use the internet (almost) every day, 33% once or twice a week, only 7% less than that – we decided to focus on the duration of use only.

Within the survey respondents were asked for 17 different online activities whether they had done them in the past month (see Table 5). The second relevant indicator reflects the **range of activities**, calculated as the number of activities done in the past month. This has also been interpreted as an indicator for online related skills (see Section 2.4). As the results presented above have shown, children differ substantially in how many different services they use. Given the relation between opportunities and risks one can assume that a broader range of activities is

³⁸ This section is based on analyses conducted by Uwe Hasebrink.

also linked with more risks. The range of activities is also substantially correlated with the duration of use ($r=0.46$). However, as shown in the section on the 'ladder of opportunities' (see Table 6), the range of activities is a highly relevant indicator for different patterns of online usage; it will therefore be included in further analysis.

Beyond the overall range of activities, the interest here is to also analyse their particular constellation. It is highly plausible that **specific online activities**, for example, visiting a chat room or a social networking site, are linked with specific risks. As further analyses show, all the activities are positively correlated with the above-mentioned indicators, that is, the duration of use as well as the range of activities. Several attempts at factor analysis were tried in order to explore the dimensional structure of these activities – for all respondents on the basis of indicators *whether* they have done the activities within the last month; for those aged 11-16 who had been asked for the *frequency* of these activities. However, in terms of the established statistical criteria, the factor solutions were not very clear; quite a few activities had double loadings on several factors. While this normally leads to the rejection of the assumption of a clear dimensional structure, in this case the double loadings seem to plausibly reflect the hybrid character of many of the activities. For example, playing online games with others means dealing with an interactive content and at the same time it has a strong communicative component. Or, visiting a social networking profile might happen for communicative reasons or for reasons of self-presentation.

In addition to the 17 indicators, presented earlier, we added two aspects of online behaviour that seem to be particularly important with regard to the overall objectives of the *EU Kids Online* survey:

- **Having an own profile on a social networking site** (or even more than one profile) is linked with a whole range of possible risks. Therefore we included a variable on this aspect (0 = No profile, 1 = One profile, 2 = More than one profile).
- Some activities, which are particularly linked with social web-related functionalities, have been investigated as '**risky online activities**' (looked for new friends on the internet; sent personal information [such as my full name, address or telephone number] to someone whom I have never met face-to-face; added people to my friends list or address book whom I have never met face-to-face; pretended to be

a different kind of person on the internet from what I really am; sent a photo or video of myself to someone whom I have never met face-to-face). We defined the number of this kind of activities as an additional variable (range from 0 to 5).

Since it is hard to get an overview of 19 variables, a factor analysis was run to identify underlying dimensions. The analysis³⁹ provided four factors (see Table 11):

Table 11: Factor analysis on online activities

	Factor 1	Factor 2	Factor 3	Factor 4
Visited a social networking profile	0.82			
How many profiles on social networking site	0.78			
Used instant messaging	0.62			
Put photos, videos or music to share with others	0.61	0.34		
Sent/received emails	0.55			0.30
Watched video clips	0.50			
Downloaded music or films	0.46			0.39
Number of risky online activities	0.39	0.39		
Written a blog or online diary		0.69		
Put a message on a website	0.37	0.56		
Visited a chat room		0.46		
Used file-sharing sites		0.43		
Used a webcam		0.36		
How often have you played internet games			0.71	
Played games with other people on the internet			0.70	
Spent time in a virtual world		0.45	0.54	
Created a character, pet or avatar		0.45	0.51	
Used the internet for school work				0.74
Read/watched the news on the internet				0.58

Base: All children who use the internet
Only loadings ≥ 0.30 .

³⁹ Principal component analysis, varimax rotation, variance explained: 45.5%.

- **Factor 1 ('Communication'):** with visiting social networking profiles being the marker variable, this factor includes a number of activities that have in common that they are mainly communicative. The fact that watching video clips and downloading music or films have the highest loadings on this factor might point to the fact that these activities are closely related to peer-to-peer communication.
- **Factor 2 ('Creativity'):** although the loadings are rather moderate, all activities require a certain degree of creativity or productivity.
- **Factor 3 ('Gaming'):** this factor clearly represents gaming and related activities. Two of the items have (plausible) double loadings with the 'Creativity' factor.
- **Factor 4 ('Learning'):** the main variable here is using the internet for schoolwork. In addition, reading or watching news on the internet is related to this factor.

Note that the 'risky online activities' cannot be unanimously attributed to one of the factors. They are modestly linked with communicative and creative activities.

The duration of use, the range of activities and the four factors were included in a series of cluster centre analyses. Based on the criteria of interpretability, stability of cluster membership and the F-values of each variable involved, we decided on a solution with six clusters. Table 12 describes the six clusters with regard to the original variables.

- **Cluster 1:** members of this cluster are characterised by a small amount of online use and a small range of activities. Risky activities are very unlikely; only a few have their own profile on a social networking site. With the exception of schoolwork most of the activities are quite seldom. Next to schoolwork and watching video clips, reading or watching the news is the second activity. This user type might be called '**Low use/learning oriented**'.
- **Cluster 2:** being generally quite similar to cluster 1 the relevant differences are the very low values for schoolwork as well as for reading/watching the news, and the higher likelihood to visit social networking site profiles. This user type might be called '**Low use/social networking site oriented**'.
- **Cluster 3:** compared to the first clusters these users spend more time with the internet and have a considerably bigger range of activities. On the other hand, compared to the other clusters, the figures are lower, without specific activities being particularly frequent. This user type might be called '**Moderate use**'.

Table 12: Description of clusters representing patterns of young people's online use

	Cl. 1	Cl. 2	Cl. 3	Cl. 4	Cl. 5	Cl. 6
<i>n</i>						
% of sample						
<i>Average values</i>						
Duration of online use (mins/day)	53	58	76	112	201	111
No of online activities	3.8	3.8	8.2	13.0	9.7	9.5
No of risky online activities	0.2	0.6	0.9	2.1	1.7	1.7
No of social networking site profiles	0.1	0.6	0.9	1.1	1.2	1.1
<i>% of children who did the activity last month</i>						
Content-based activities						
Schoolwork	95	29	96	92	85	91
Played games alone (almost every day)	12	19	26	36	54	3
Video clips	51	55	93	95	97	92
News online	39	8	57	74	50	72
Download music or film	16	11	60	73	68	62
Contact/communication-based activities						
Instant messaging	23	33	84	90	88	90
Visit social networking site	6	55	87	91	91	97
Email	27	29	82	90	83	86
Games with others online	27	29	53	90	77	17
Used a webcam	14	9	31	65	41	54
Visit chat room	4	9	18	71	38	38
Post photos or videos	4	18	46	77	62	77
Conduct/peer participation activities						
Posted message	7	12	21	77	45	69
Create avatar	8	13	9	74	25	6
Uses file-sharing sites	3	5	13	56	29	33
Virtual world	6	12	7	73	20	4
Written blog or diary	1	1	1	47	3	36

- **Cluster 4:** besides spending almost two hours per day with the internet, this group has the biggest range of activities and also the biggest number of risky online activities. They are most likely to read/watch news, to download music or films, to send or receive emails, to play games with others and to use a webcam. In particular, the less popular, more creative activities are by far most frequent in this group: creating avatars, using file-sharing sites, spending time in virtual worlds and writing blogs or diaries. This user type might be called **'Diverse and risky opportunities'**.
- **Cluster 5:** this pattern is characterised by the longest duration of daily online use (201 minutes), while the range of activities is lower than for Cluster 4, although still above the overall average. Playing games on your own or against the computer and watching video clips are the two specific activities with the highest values among all clusters. Comparatively low are the figures for schoolwork, reading/watching the news and all activities related to producing or publishing – such as writing blogs or diaries, or posting messages. This user type might be called **'High use/entertainment oriented'**.
- **Cluster 6:** young people belonging to this cluster are slightly above average regarding the amount of use and the range of activities. The most obvious characteristic is the almost complete absence of gaming activities. On the other hand, they are most likely to visit social networking profiles. Some other activities are almost as frequent as in the 'Diverse and risky opportunities' group (Cluster 4): reading/watching news, instant messaging, posting photos or music, writing blogs or diaries. This user type might be called **'Focused social web use'**.

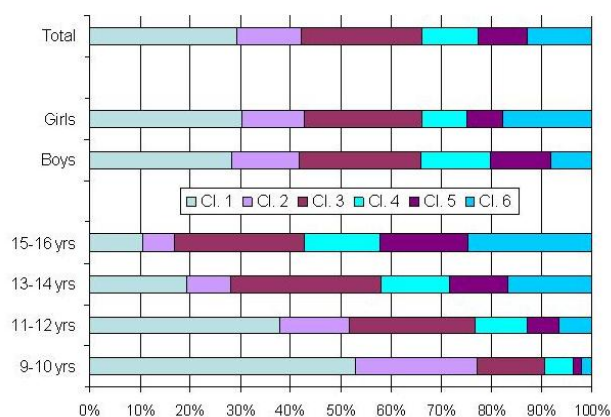
Table 13: Distribution of age and gender groups within clusters (column %)

	Cl. 1	Cl. 2	Cl. 3	Cl. 4	Cl. 5	Cl. 6
Girls	51	48	49	39	37	68
Boys	49	52	51	61	63	32
9-10 years	41	43	13	11	5	4
11-12 years	32	26	26	22	16	13
13-14 years	18	18	34	32	33	34
15-16 years	9	13	28	35	47	50
Average age	11.4	11.5	13.1	13.4	14.0	14.2

The order in which the clusters have been presented reflects the average age of the cluster members with Cluster 1 being the youngest, and Cluster 6 being the oldest (see Table 13). While the three younger clusters include almost equal numbers of boys and girls, two of the older clusters, 'Diverse and risky opportunities' and 'High use/entertainment-oriented', include considerably more boys, and one cluster, 'Focused social web use', considerably more girls.

Figure 12 illustrates how the clusters are distributed within the gender and age groups. Girls and boys differ with regard to the likelihood of belonging to Clusters 4, 5 and 6. More than 90% of the youngest users belong to the three first clusters, with an average duration of online use below one-and-a-half hours.

Figure 12: Distribution of user types within gender and age groups



As the cluster descriptions show, there is a general tendency of a 'the more the more' rule, according to which the time spent online, the range of activities, as well as most of the specific activities are positively correlated. This observation is in line with the 'ladder of opportunities' as presented above. However, the concrete clusters also show that concrete patterns of use do not completely follow this rule. Cluster 5 has by far the longest time spent online, but only a moderate range of activities; the opposite is true for Cluster 4. The younger Clusters 1 and 2 have almost the same duration of use and range of activities, but they obviously use the internet for different kinds of activities.

This step has shown that children and young people differ substantially in how they use the internet and

that it is possible to identify meaningful **patterns of usage, which represent different types of online experiences**. These patterns will be taken up at the end of this report, when it comes to the analysis of the relationship between patterns of usage and the likelihood of experiencing risk and harm.

3. RISKS AND HARM

3.1. Researching experiences of risk and harm

As has been discussed in more detail in the first report on descriptive findings,⁴⁰ it is acknowledged from the outset that it is particularly difficult to measure harmful or upsetting aspects of a child's experience. Our approach was based on the following conceptual decisions:

- Sensitive questions on risk, parental mediation and items where privacy should be respected were presented to children using a self-completion format so that neither the interviewer nor any family member present could oversee the child's response.⁴¹
- Rather than using emotive terms ('bully', 'stranger'), descriptions were provided using child-friendly language to ensure that children understood what was being asked of them.
- Questions focused on children's reports of what had actually happened to them within a set time period, or the last time something happened, rather than inviting general statements of opinion or response.
- Every attempt was made to phrase questions neutrally, avoiding value judgements. Children were asked if a specific experience had bothered them without assuming that it had indeed been problematic (experienced as harmful) by all children.
- 'Bothered' was defined thus: *'for example, [something that] made you feel uncomfortable, upset, or feel that you shouldn't have seen it'*.
- Thus harm was measured subjectively in terms of the child's perceived severity and duration of their upsetting experiences (that is, harm). Within a survey, an objective account of harm is not

obtainable (as might, for instance, be possible using the records from law enforcement or clinicians).⁴²

- Detailed follow-up questions on what children have experienced online, how they felt and how they may have coped were asked for four main risks of harm to the child's safety: bullying, pornography, sending/receiving sexual messages ('sexting') and meeting online contacts ('strangers') offline. These main risks are analysed in more detail below.
- It was recognised that children may either be victims or perpetrators of certain harmful events (or both). This was explored for bullying and sending/receiving sexual messages.
- An effort was made to keep online risks in proportion by comparing the incidence of online and offline risk experiences where appropriate.
- For sensitive questions, children could always answer 'don't know' or 'prefer not to say', rather than being forced to provide an answer when uneasy. In general, few children selected these options but ethically it was important to give children the option.⁴³

A detailed account of the methodological principles employed in the project, especially on the ethics of asking children questions about sensitive or private or 'adult' matters, is taken in the online documents at

⁴⁰ 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.

⁴¹ In countries (shown in Annex 3) where survey administration was computer assisted (CAPI), the computer was turned to face the child for sensitive questions. In other countries, the child completed a private pen-and-paper questionnaire, putting this into a sealed envelope.

⁴² Hansson, S.O. (2010) 'Risk: objective or subjective, facts or values', *Journal of Risk Research*, 13(2), 231-8.

⁴³ In the findings reported here, the response options, 'don't know' and 'prefer not to say' have been treated as missing and therefore taken out of the base for calculating percentages. For example, in relation to children's reports of exposure to sexual images online, 4% said that they don't know and 2% preferred not to say, suggesting that only for a few was this too uncomfortable a question to answer. There is no clear age or country difference in the percentage of children that choose the 'don't know' and the 'prefer not to say' options. 'Don't know' answers have been included (and shown in the graphs/tables) when there was a theoretical rationale for reporting them as a distinct category of response option. For example, in the parent/child comparisons, parental 'don't know' answers have been included in the base, since they reflect significant uncertainty on the parents' part that is worthy of interpretation.

www.eukidsonline.net.⁴⁴ This includes the Research Ethics approval process undertaken and the Technical Report on survey design, sampling and administration.

For this report the following questions will be analysed in more detail:

- Which factors shape bullying behaviours and experiences? (Section 3.2)
- Which factors shape the experience of sexual content online? (Section 3.3)
- Which factors shape experiences with meeting new people? (Section 3.4)
- Which factors shape experiences of harm and coping? (Section 3.5)

3.2. Which factors shape bullying behaviours and experiences?⁴⁵

The use of different definitions of and methodologies for measuring cyberbullying has in the past made comparisons between studies difficult. Certainly this situation has produced a range of different figures for the prevalence of cyberbullying, but different studies have also produced different results regarding the socio-demographics of cyberbullies. In this report the terms 'bully', 'bullied' and 'bully victim' are used for convenience. However, in the interviews, **children were asked about being treated/treating people in a hurtful or nasty way on the internet**, and this could include anything from single to repeated or persistent occurrences. **Cyberbullying is defined as bullying on the internet or mobile phone, and online bullying as bullying on the internet only.**

Links between offline and online bullying and between bullying and being bullied

Two areas of interest in the previous literature which were explored in the *EU Kids Online* study were the relation between traditional offline bullying and online bullying, and the relationships between online bullies and victims of that online bullying, including the psychological profiles of those having the two experiences.

- Across Europe, **6% of 9- to 16-year-olds who use the internet report having been bullied online while only half as many (3%) confess to having done bullied others.**
- Since 19% have been bullied either online and/or offline, and 12% have bullied someone else either online and/or offline, **it seems more bullying occurs offline than online.**
- **There is a link between offline and online bullying:** 56% of online bullies said they had bullied others face-to-face and 55% of online bullying victims also claimed to be victims of face-to-face bullying.
- It seems that **bullying and being bullied tend to go together.** Among those who do not bully others, being bullied is relatively rare – 8% offline only, and 4% online. But, among those who have bullied others offline, nearly half (47%) have also been bullied offline (and fewer online). On the other hand, among those who have bullied others online, nearly half (40%) have been bullied online (and fewer offline).

Who is involved in online bullying?

Some socio-demographic variation was found among those who responded to at least one of the questions regarding bullying. Figure 13 shows:

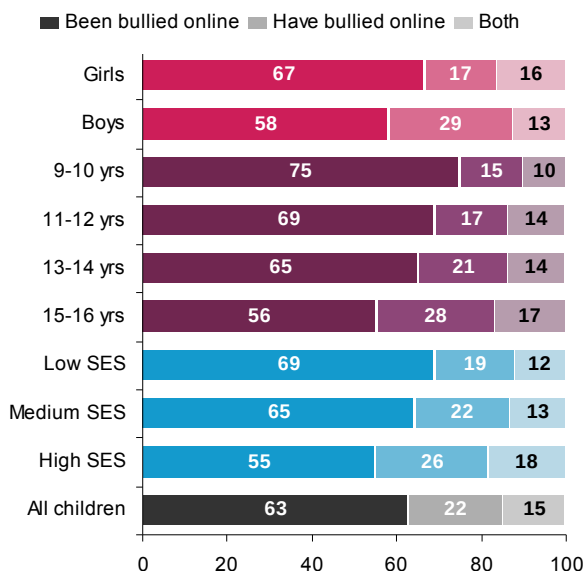
- Among those involved in online bullying, **girls, younger children and those from a low socio-demographic background report more often being victims of bullying and less often to bully others** than boys, older children and those with a higher socio-demographic background.

Overall, these differences suggest that those socio-demographic groups who are in some way or other more vulnerable are also more likely to report being victims than perpetrators (only) of online bullying. Does this mean that those who are generally more vulnerable are also more vulnerable to online bullying? And if so, how, then, is *psychological* vulnerability related to online bullying?

⁴⁴ For a review of research methodology, see Lobe, B., Livingstone, S., Olafsson, K. and Simões, J.A. (2008) *Best practice research guide: How to research children and online technologies in comparative perspective*. LSE, London: EU Kids Online.

⁴⁵ This section is based on analyses conducted by Anke Görzig (see also the short report, Görzig, A. [2011] *Who bullies and who is bullied online*, LSE, London: EU Kids Online) and Claudia Lampert and Veronica Donoso.

Figure 13: Percentages of children among those involved in online bullying who have been bullied, have bullied, or both, by demographics



Note: All socio-demographic differences were statistically significant (gender: $\chi^2_{(2)} = 26$, age: $\chi^2_{(6)} = 44.4$ and SES: $\chi^2_{(4)} = 12.5$; all $ps < 0.02$).

QC115: At any time during the last 12 months has this [that you have been treated in a hurtful or nasty way] happened on the internet? QC127: In which of the following ways have you [acted in a way that might have felt hurtful or nasty to someone else] in the past 12 months? On the internet.

Base: All children who use the internet – only children who either have been bullied online, have bullied online, or both

Source: Görzig (2011)

Online bullying and psychological vulnerability

Those who bully online, are bullied online, or both, are in the minority among 9- to 16-year-old European children who use the internet. Ninety-three per cent had neither of the two bullying experiences. An analysis of variance was conducted to compare the psychological vulnerability of those who have been bullied online (victims), have bullied online (bullies), have experienced both, and neither.

Three measures from research associated with offline bullying were used: psychological difficulties (SDQ⁴⁶),

⁴⁶ The psychological difficulties subscales of the SDQ were summed and averaged (see www.sdqinfo.org).

sensation seeking⁴⁷ and social exclusion or ostracism.⁴⁸ All measures were assessed by asking the child to what extent he/she agreed to various statements on a scale from 1 ('not true') to 3 ('very true'). Example statements were:

- **Psychological difficulties:** 'I am often unhappy, sad or tearful' (emotional problems subscale); 'I am easily distracted, I find it difficult to concentrate' (hyperactivity subscale); 'I am often accused of lying or cheating' (conduct problems subscale); 'I am usually on my own, I generally play alone or keep to myself' (peer problems subscale).
- **Sensation seeking:** 'I do dangerous things for fun'.
- **Ostracism:** 'Other people my age often treat me as if I wasn't there'.

Figure 14 shows each group's response score on the three psychological measures as a difference from the average response score of all children who completed the survey. Statistical significance testing⁴⁹ revealed:

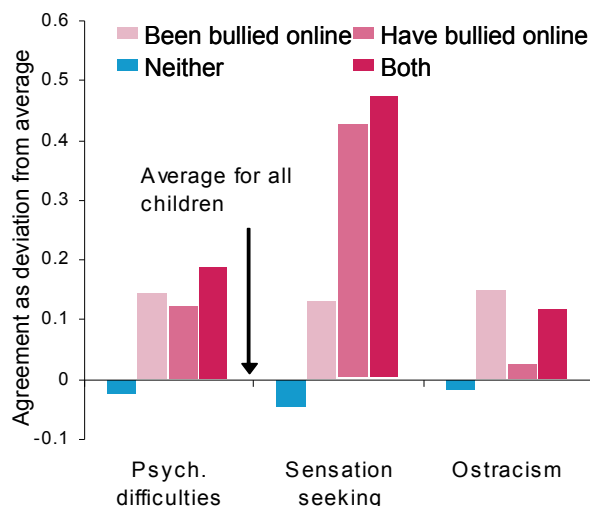
- **Psychological difficulties:** the three bullying groups show higher psychological difficulties compared to those neither having bullied nor having been bullied online. In addition, those who are both online bullies and victims of online bullying show higher psychological difficulties than those who are bullies but not bully victims.
- **Sensation seeking:** the three bullying groups show higher sensation seeking compared to those neither having bullied nor having been bullied online. Those who have bullied or are bullies and victims are higher in sensation seeking than those who are bully victims but not bullies.
- **Ostracism:** those who have been bully victims or both (bullies and victims) show higher ostracism than those who experienced neither. Further, bully victims show higher ostracism than bullies.

⁴⁷ Stephenson, M.T., Hoyle, R.H., Palmgreen, P. and Slater, M.D. (2003) 'Brief measures of sensation seeking for screening and large-scale surveys', *Drug and Alcohol Dependence*, 72(3), 279-86.

⁴⁸ Ferris, D., Brown, D.J., Berry, J.W. and Lian, H. (2008) 'The development and validation of the Workplace Ostracism Scale', *Journal of Applied Psychology*, 93(6), 1348-66.

⁴⁹ Post hoc comparisons were conducted via Scheffé tests. Only results significant with an α -error <5% are discussed.

Figure 14: Children's psychological characteristics as a function of having been bullied online, having bullied others online, neither or both



Note: Variables are mean centred (0 = average for all children).

Base: All children who use the internet

Source: Görzig (2011)

Taken together, these findings suggest that **psychological difficulties are associated with both online bullying and victimisation, sensation seeking with online bullying and ostracism with victimisation from online bullying.** Moreover, it also seems that those involved in online bullying show overall a higher psychological vulnerability than those not involved in online bullying. In line with other research from *EU Kids Online*⁵⁰ these findings suggest that those who can be seen as vulnerable in general (on- and offline) should be the target of future policy initiatives.

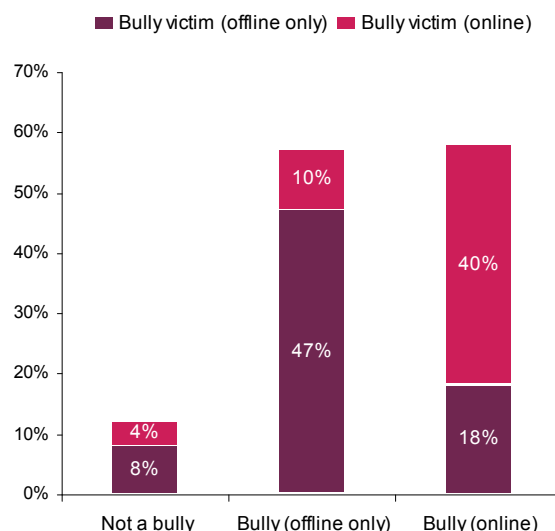
It was shown that the patterns of psychological variables with regards to online bullying are consistent with research on offline bullying.⁵¹ But what, may one ask then,

differentiates between offline and online bullies? Further analyses were conducted to reveal some of these factors.

Online and offline bullying

How many of those who have bullied others in general have been bullied? Has either of this happened offline or online? And how does this compare to those who have never bullied others? Before children in the *EU Kids Online* survey were asked whether they had bullied or had been bullied online, they were asked whether they had bullied or had been bullied in general, that is, offline and online.

Figure 15: The proportion of children who have been bully victims online or offline, of those who are bullies (on- or offline) or not bullies



Note: Differences were statistically significant ($\chi^2_{(4)} = 4186.6$; $p < 0.01$).

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 [that you have been treated in a hurtful or nasty way] happened on the internet? QC125: Have you acted in a way that might have felt hurtful or nasty to someone else in the past 12 months? QC127: In which of the following ways have you

⁵⁰ Livingstone, S. and Görzig, A. (under review) 'When adolescents receive sexual messages on the internet: explaining experiences of risk and harm', submitted to *Communication Research*.

⁵¹ Smith, P. K., Talamelli, L., Cowie, H., Naylor, P. and Chauhan, P. (2004) 'Profiles of non-victims, escaped victims, continuing victims and new victims of school bullying', *British Journal of*

Educational Psychology, 74(4), 565-81; Wilson, L.C. and Scarpa, A. (2011) 'The link between sensation seeking and aggression: a meta-analytic review', *Aggressive Behavior*, 37(1), 81-90; Williams, K., Forgas, J. and von Hippel, W. (eds) (2005) *The social outcast: Ostracism, social exclusion, rejection, and bullying*, New York: Psychology Press.



[acted in a way that might have felt hurtful or nasty to someone else] in the past 12 months? on the internet.

Base: All children who use the internet

Source: Görzig (2011)

Figure 15 shows how many of those that either (a) are not bullies, (b) bullied others exclusively offline, or (c) have bullied others online have themselves been victims of bullying by others online or offline only. The group with the lowest incidence of being bully victims (8% offline and 4% online) are those who have not bullied others. Those who have bullied others offline only and those who have bullied others online have equally been bully victims (both groups ~60%).

The **mode of bullying others** – on versus offline – **seems to correspond with the mode of being bullied by others**. Those who have bullied others offline only have mainly been bullied offline only (47% compared to 10% online) and those who have bullied others online have mainly been bullied online (40% compared to 18% offline). These findings suggest not only that those who bully have also been bullied and vice versa, but also that bullying others and being bullied mostly occurs through similar modes. Bully victims may possibly seek revenge or, put differently, may try ‘to get back’ at those who bullied others through similar means.

However, to keep things in perspective, even though it was shown that overall around 60% of bullies say that they have been bullied, this also implies that 40% *have not* been bullied. Equally, 40% of bully victims admit that they have bullied others, but 60% say that they *have not* bullied others.

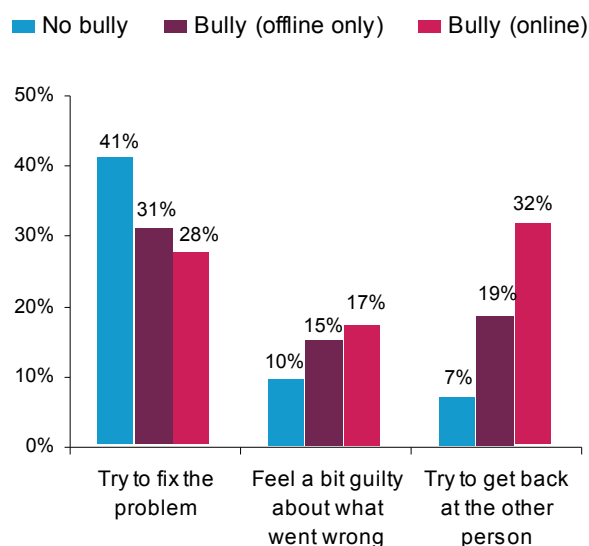
It is important to note that the *EU Kids Online* survey assessed children’s responses at one point in time only. Therefore we cannot know what the causal links between being bullied online and bullying online are; that is, does the child who is first bullied online then become an online bully to seek revenge or is the child who is first an online bully then in turn bullied online by others who seek revenge, or both?

To explore these questions, further analyses were conducted on children’s responses to online bullying.

How do children respond to being bullied online?

Figure 16 shows the responses to online bullying of those who have not bullied, bullied offline only and bullied online.

Figure 16: Children’s responses to online bullying of those who are bullies (on- or offline) or not bullies



Note: All differences were statistically significant ($\chi^2_{(2)} = 6.8$ to 55.5; all $p < 0.05$).

QC120: Did you do any of these things afterwards [being bullied online]? Try to fix the problem. Feel a bit guilty about what went wrong. Try to get back at the other person.

Base: All children who use the internet and have been bullied online

Source: Görzig (2011)

- Around 40% of those who have not bullied say they ‘tried to fix the problem’ while this response was given by about 10% less (~30%) among both the offline and online bullies.
- Less than 10% of those who have not bullied ‘felt a bit guilty about what went wrong’. However, this response increased by at least half (+5%) among offline and online bullies.
- While only a small percentage of those who did not bully (7%) responded that they would ‘try to get back at the other person’, this response was given by 19% of the offline bullies and one-third (32%) of the online bullies.

Not only do these findings suggest that **bullies more often than non-bullies try to get back at the other person and thus their motive for bullying might be revenge**, but also revenge might be more likely to take place on the same mode that bullying had occurred: ‘Trying to get back at the other person’ when being bullied

online is one-third higher among online bullies when compared to offline bullies.

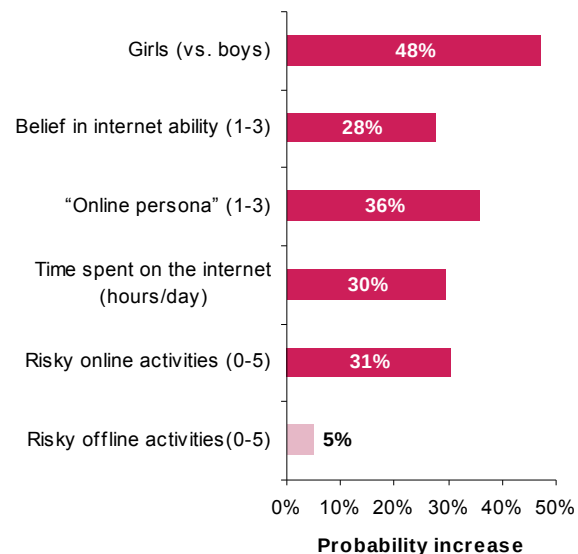
Offline and online bullies appear to have similar psychological profiles and responses to being bullied by others online. What differentiates the two seems to be mainly the mode through which they bully (offline versus online), but what are the particular factors that distinguish online from offline bullies?

How do online bullies differ from offline bullies?

A logistic regression was carried out to show which variables associated with internet behaviour (time spent online, risky online activities) and attitudes (belief in own abilities, feeling more comfortable online than offline) can help to differentiate between offline and online bullies. Moreover, a measure for risky offline activities was added to assess whether the potentially risky behaviours of online bullies are restricted to the internet. In addition, the analyses looked at gender differences between the bully types. The following measures were used:

- **Belief in own internet ability:** the child was asked to what extent he/she agreed with the following statement on a scale from 1 ('not true') to 3 ('very true'): 'I know lots of things about using the internet'.
- **'Online persona':** the child was asked to what extent he/she agreed to the following statements on a scale from 1 ('not true') to 3 ('very true'): 'I find it easier to be myself on the internet', 'I talk about different things on the internet than face to face', 'On the internet I talk about private things'. The average was taken across these three questions.
- **Time spent on the internet:** an estimate of how many hours a day the child spends online was calculated from the child's responses to the question of how many minutes per day he/she spends online each day.

Figure 17: The increase in the odds of being an online as compared to an offline bully when each measure increases by one unit



Note: $-2 \text{ Log likelihood} = 2,611.98$; $\chi^2_{(6)} = 231.9$; $p < 0.001$; pale column is not statistically significant on a 5% level.

Base: All children who use the internet and have bullied

Source: Görzig (2011)

- **Risky online activities:** the child was asked whether or not (yes/no) he/she had carried out the following five activities: 'Looked for new friends on the internet', 'Added people to my friends list or address book whom 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 whom I have never met face-to-face', 'Sent a photo or video of myself to someone whom I have never met face-to-face'. The number of 'yes' answers were added up.
- **Risky offline activities:** the child was asked whether or not (yes/no) he/she had carried out the following five activities: 'Had so much alcohol that I got really drunk',⁵² 'Missed school lessons without my parents knowing', 'Had sexual intercourse',⁵³ 'Been in trouble with my teachers for bad behaviour', 'Been in trouble with the police'. The number of 'yes' answers were added up.

⁵² This question was only asked of those aged 11+.

⁵³ This question was only asked of those aged 11+.



The results in Figure 17 show how the odds for a child to be an online bully compared to an offline bully increases when one of the factors is changed by one unit. Specifically, it is shown that the odds of being an online bully as opposed to an offline bully increase by 48% when the child is a girl as opposed to a boy, by 28% when the child's belief in his or her internet abilities increases by one point (of three), by 36% when the child's score on the 'online persona' scale increases by one, by 30% when the child spends an additional hour online, by 31% when the child engages in one additional risky online activity and by 5% when the child engages in one additional risky offline activity.

Findings from previous research⁵⁴ show that, **offline, bullies are more likely to be boys than girls**. Online compared to offline, however, the likelihood of girls being bullies increases more than for boys. The consequence is that **boys and girls are equally likely to bully online (but not offline)**.

Further, children who are online compared to offline bullies are more likely to use the internet, believe more in their internet ability, engage in risky online activities and have an 'online persona' (that is, feel more comfortable online than offline). However, the findings on Risky offline activities show no statistically significant differences between online and offline bullies. So, online bullies are *not* more likely to engage in risky offline activities than offline bullies. In sum, these findings suggest that **online bullies can be differentiated from offline bullies on the basis of their behaviour and attitudes associated with the internet as well as their gender composition rather than on the basis of their offline behaviours**.

Given that being bullied and having bullied go hand in hand one might expect that victims of online bullying would differ from victims of offline bullying in a similar manner as online bullies differ from offline bullies.

Implications

The findings regarding children's experiences with online bullying can be summarised as follows:

- **Online bullies and those being bullied online are those children who are mostly also vulnerable**

offline. This supports previous findings that those **children who already face problems offline are not only in need of support in their offline lives but also in their online lives**. This includes children who have psychological difficulties, are socially excluded (ostracised), engage in unhealthy sensation-seeking behaviours or are in some way or other members of a vulnerable group.

- Children who are bullied and/or bully others online have similar demographic and psychological profiles to those who are bullied and/or bully offline. It is suggested that those children bullied or bullying online are not very different from those bullied or bullying offline except in that they make use of the affordances of the internet (for example, the chance to meet new people online or to network with peers).
- Those **children who are causing harmful experiences online to others in the form of bullying are often the very same ones being bullied online by others**, some of them known and some unknown to them offline.

It is possible that being bullied by others online can sometimes be the response to having bullied others online, and vice versa, bullying others online can sometimes be the response to being bullied by others online. Although we cannot determine which is the cause and which the effect, **providing more support for children who are victims of bullying might simultaneously decrease the occurrence of online bullying**. Similarly, working to prevent children from engaging in online bullying behaviours might reduce the chance that they themselves will be bullied online by others.

On a positive note and to keep these findings in perspective it was shown that 93% of European children have neither been bullied nor bullied others online.

3.3. Which factors shape the experience of sexual content online?⁵⁵

Children can be confronted with different kinds of sexual content online. This can happen accidentally, because they looked for it, were targeted to receive such content

⁵⁴ Sourander, A., Helstela, L., Helenius, H. and Piha, J. (2000) 'Persistence of bullying from childhood to adolescence: a longitudinal 8-year follow-up study', *Child Abuse and Neglect*, 24, 873-81.

⁵⁵ This section is based on analyses conducted by Sonia Livingstone and Anke Görzig and adapted to include sexual images in addition to sexual messaging.

and/or as an exchange between children themselves. The *EU Kids Online* study focused in particular on two types of sexual content: **sexual messages (sexting)** and **sexual images**.

Sexting, receiving or sending sexual messages originally on the mobile phone but subsequently online is a fairly new phenomenon. Hence there is only a limited research literature, and mostly from the US. Although there was at one stage a moral panic about the phenomenon, it has become clearer that it can be experienced in different ways – sometimes as flirtatious or as messages between partners engaged in a relationship, sometimes as sexual harassment, causing distress, for example, if circulated to others. In the *EU Kids Online* study, **15% of the sample had received a sexual message, while 4% (about 25% of those who had received a message) were upset by it.**

The issue of children seeing sexual images is more complex. Although there are public concerns about this, as manifest in laws about the lower age limit for buying pornography or what can be shown on television (before certain times), some commentators point out that we live in a world where sexual imagery abounds, which children encounter all around them. Others question conceptions of childhood that stress the innocence of children and what exactly they need to be protected from. Yet others note that it is very difficult to measure what 'harm', if any, occurs. In the *EU Kids Online* study, **14% of the sample had seen sexual images online, while 4% (about 25% of those who had seen an image) were upset by it.**

The content of sexual messages and sexual images cannot always be clearly differentiated, and often both go together. Although, it was initially expected that both would be two distinct phenomena, children's responses suggest that they did not clearly separate the two. For this reason the analysis for receiving sexual messages and seeing sexual images is presented together in the following.

Children were asked whether they had encountered any of five types⁵⁶ of sexual messages or images online.

⁵⁶ Types of sexual messages: I have...been sent a sexual message on the internet, seen a sexual message posted where other people could see it on the internet, been asked to talk about sexual acts with someone on the internet, been asked on the internet for a photo or video showing my private parts, seen other people perform sexual acts; type of sexual images: Images or video of... someone naked, someone's 'private parts', someone

Table 14 shows the associations between a number of demographic and psychological characteristics with the number of different types of sexual content online in the form of correlations: **while gender only made a negligible difference for sexual messages it had a small effect for seeing sexual images** with boys having seen more than girls. Further, **the older the children, the more likely the experience of sexual content online.** Those with high self-efficacy, a high sensation-seeking orientation and various kinds of psychological difficulties (for example, using subscales from the SDQ⁵⁷ including emotional, conduct, peer relationship problems and hyperactivity) were more likely to experience sexual content. Self-efficacy matters slightly more for sexual images while psychological difficulties are more important among sexual messages.

A 'usage' hypothesis was put forward, that those who use the internet more and in more ways as measured by places used, number of activities online, minutes of use and risky online activities (such as adding people to an address book who had not been met face-to-face) would also experience more sexual content online, that is, children who do more generally will also experience sexual content as well. In fact, all four measures of children's practices correlate with experiencing sexual content. Places of use matters slightly more for sexual images while risky online behaviours matters a bit more for sexual messages. However, the effect size of these differences is negligible.

In addition a hypothesis of 'risk migration' was confirmed: those who experienced a range of risks offline were more likely to experience sexual content online, more so for sexual messages than for sexual images, yet again this difference was beyond meaningful.

Indeed analyses conducted elsewhere⁵⁸ have shown that the association of age and psychological variables with sexual content partially occurs through use and 'risk migration', that is, age and psychological differences in experiencing sexual content are partially due to the fact that older children and those higher in sensation seeking,

having sex, movies that show sex in a violent way, something else.

⁵⁷ See www.sdqinfo.org.

⁵⁸ Livingstone, S. and Görzig, A. (under review) 'When adolescents receive sexual messages on the internet: Explaining experiences of risk and harm', submitted to *Communication Research*.

self-efficacy and psychological difficulties use the internet more, use it in a more risky way and are also already prone to more risks online than younger children and

those lower in sensation seeking, self-efficacy and psychological difficulties.

Table 14: Correlations among predictors and mediators for risk of sexual content online (ages 11-16)

			Correlations									
	Range or number (scale) of items	M	Age	Gender	Self-efficacy	Sensation Seeking	Psych. difficulties	Places of use	Minutes online	Activities online	Risky online activities	Risky offline activities
Independent variables												
Age	11-16	13.5	1.00									
Gender	Female = 0	–	-.01	1.00								
Self-efficacy	4 (1-3)	2.24	.14**	.05**	1.00							
Sensation seeking	2 (1-3)	1.38	.14**	.018**	.16**	1.00						
Psychological difficulties	16 (1-3)	1.40	.00	-.03**	-.17**	.25**	1.00					
Mediators												
Places of use	8	3.38	.12**	.00	.11**	.17**	.01	1.00				
Minutes online	5-270	104	.28**	.05**	.09**	.16**	.09**	.20**	1.00			
Activities online	17	8.13	.30**	.06**	.17**	.22**	.06**	.32**	.42**	1.00		
Risky online activities	5	1.43	.18**	.02**	.06**	.24**	.15**	.20**	.26**	.35**	1.00	
Risky offline activities	5	0.47	.32**	.08**	.09**	.40**	.20**	.17**	.22**	.24**	.24**	1.00
Dependent variables												
Types of sexual messaging	5	0.25	.20**	.02 _a **	.06 _a **	.22**	.13 _a **	.13 _a **	.18**	.25**	.29 _a **	.36 _a **
Types of sexual images	5	0.36	.21**	.09 _a **	.11 _a **	.23**	.08 _a **	.16 _a **	.19**	.26**	.25 _a **	.32 _a **

** Correlation is significant at the 0.01 level (2-tailed).

_a Correlations for sexual messaging and sexual images are significantly different at the 0.05 level (2-tailed).

Note: $n = 18,709$; 95% CI: 95% confidence interval.

As regards harm, Table 15 shows the correlations between the same independent variables and the experience of harm from sexual content online (that is, sexual messaging/sexual images). In the survey children were asked whether and how upset they were ("0 - Not at all upset" to "3 - Very upset") and how long they were upset for ("1 - I got over it straight away" to "4 - I felt like that for a couple of months or more") by the sexual messages and images encountered. Answers were multiplied to create an index of harm ("0 - no harm" to "12 - high degree of harm"). **Younger children and girls are more likely to be upset by experiencing sexual content online and the gender difference is slightly more pronounced for sexual messages.**

Among the psychological predictors, the strongest effect as explaining harm from both types of sexual content was **psychological difficulties**: children with more

psychological difficulties are more likely to find sexual content online upsetting than those lower on this measure. This is consistent with the notion that psychological difficulties are associated with maladaptive coping.⁵⁹

Also, **while higher levels in sensation seeking were associated with experiencing more types of sexual content, among those who encountered sexual content, lower sensation seeking is associated with greater upset for sexual messaging** (but not for sexual images), possibly because children low in sensation seeking have had fewer occasions to develop resilience to sexual messaging online.

⁵⁹ Thabet, A., Tischler, V. and Vostanis, P. (2004) 'Maltreatment and coping strategies among male adolescents living in the Gaza Strip', *Child Abuse & Neglect*, 28(1), 77-91.

Table 15: Correlations among predictors and harm from sexual content online (ages 11-16)

	Range or number (scale) of items	M	Age	Gender	Correlations		
					Self- efficacy	Sensation Seeking	Psych. difficulties
Independent variables							
Age	11-16	14.36/14.24	1.00				
Gender	Female = 0	-	.01/.02	1.00			
Self-efficacy	4 (1-3)	2.33/2.35	.11/.12**	.11**	1.00		
Sensation seeking	2 (1-3)	1.66/1.63	.10/.07**	.19/.18**	.14/.15**	1.00	
Psychological difficulties	16 (1-3)	1.46/1.44	-.06	-.09/-.11**	.20/.21**	-.23**	1.00
Dependent variables							
Harm index (sexual messages)	0-12	0.53	-.18**	-.16 _a **	-.09**	-.07 _a **	.15**
Harm index (sexual images)	0-12	0.58	-.18**	-.11 _a **	-.11**	-.02 _a	.17**

** Correlation is significant at the 0.01 level (2-tailed).

_a Correlations for sexual messaging and sexual images are significantly different at the 0.05 level (2-tailed).

Note: The analysis was performed on those children who had indicated that they had received at least one type of sexual message ($n = 2,414$) or sexual image ($n = 3,473$) online. Findings that were different for sexual messaging and sexual images have been separated by a dash reporting sexual messaging first.

Along similar lines, while higher levels of self-efficacy were associated with experiencing more types of sexual content, among those who encountered sexual content, **higher self-efficacy is associated with less harm** (upset) from both forms of sexual content. This supports other research showing that self-efficacy plays an important role in adaptive action and coping.⁶⁰

In general, **these findings confirm a ‘vulnerability’ hypothesis, that children with certain demographics (younger age, girls) and psychological features (high psychological difficulties, low self-efficacy and sensation seeking) have a more difficult time in coping with the risk they encounter and are more likely to experience harm.**

The results also indicate that **some factors associated with risk** (encountering more sexual content online) such as being older and scoring high in self-efficacy and sensation seeking **are not always the same as factors associated with being upset**, such as being younger and scoring low in self-efficacy and sensation seeking.

3.4. Which factors shape experiences with meeting new people?⁶¹

In many countries there are public anxieties, reflected also in parental concerns, about children meeting new people online and maybe then offline, especially because of worries about paedophiles. However, meeting new people can mean many things. One can differentiate between **friends of friends or friends of family** (who may be unknown to the child but part of the social network to which the child belongs) and **‘complete strangers’** – with no such link. In the survey, **5% of children claimed to have made contact online and subsequently met offline with the former, and 4% with the latter.** But even complete strangers can include others taking part in multi-person online gaming or those who share an interest or hobby who may or may not also be children. They can include other youth with whom young people wish to engage, either for socialising generally or for dating purposes. We should not forget that in many discussions of the benefits of the

⁶⁰ Schwarzer, R., Mueller, J. and Greenglass, E. (1999) ‘Assessment of perceived general self-efficacy on the internet: Data collection in cyberspace’, *Anxiety, Stress, and Coping*, 12, 145-61.

⁶¹ This section has been partially based on ideas and analyses put forward by Monica Barbovschi, Valentina Marinescu, Anca Velicu, and Eva Laszlo.

internet the opportunity that it offers to 'meet new people' is often viewed positively.

There is little but nonetheless some research on the characteristics of those who meet new people and their motivations for doing so, and from these and from theories about the online world some hypotheses can be derived to guide the analyses presented below.

Following the results in the previous section, it is hypothesised that children will be more likely to encounter risks online if they use the internet longer and more widely, if they are prone to take risks (online and offline), and if they are psychologically inclined to seek out sensations as well as believe that they can cope with difficult situations (i.e. self-efficacy).

Adding to the analyses presented previously, we also investigated whether parental influence plays a role when meeting new contacts online. Hence, parental restrictions regarding internet use were included in the analyses. The *EU Kids Online* survey asked parents whether their child is allowed to do each of six potentially risky online activities (e.g., "give out personal information to others on the internet").

The first analysis uses logistic regression to see which role each factors plays in the odds of children meeting new contacts online that they have never met face to face before (see Table 16).

Logistic regression analysis shows which role each factor plays while holding all other factors constant: for example, what role does age play for children of similar gender, similar level of psychological difficulties and the same internet use and risky activities.

In terms of demographic factors it was shown that, all else being equal, the odds of meeting new contacts online increases with age (10% per year) but decreases by 15% for boys as opposed to girls. The results for the psychological variables show that the odds of making new online contacts increases with a child's level of self-efficacy and sensation seeking but not with their level of psychological difficulties. In addition, all the indicators for internet use (i.e., number of places of use, hours online/day, number of online activities) and, in line with the *risk migration hypotheses* (see 3.3), the number of risky online as well as offline activities, are significantly related to an increase in the odds of making new contacts online. Further, each additional restriction by

parents on children's internet use decreases the odds of their making new contacts online by 7%.

Table 16: Logistic regression for the risk of contacting online people never met face to face

Variables	Mean	Range	Exp(B)
Age of child	12.5	9-16	1.10**
Gender (female = 0)	-	-	0.85**
Self-efficacy	2.19	1-3	1.49**
Sensation seeking	1.35	1-3	1.27**
Psychological Difficulties	1.40	1-3	1.07
Number of places where the internet is used	3.18	0-8	1.05**
Hours online/day	1.6	0.1-4.5	1.20**
Online activities	7.26	0-17	1.11**
Risky online activities	1.25	0-5	1.56**
Risky offline activities	0.41	0-5	1.17**
Number of parental restrictions	2.74	0-6	0.93**
Constant	-	-	0.01**

Base: all children 9-16 year old who use the internet.
** p < .001.

Although meeting new people online is a prerequisite for meeting those new contacts offline, many will argue that only the latter is the potentially harmful event, i.e. a risk for children.

Therefore a second analysis was conducted, again using logistic regression, to see if the same factors of demographic, psychological, internet usage and parental restriction variables differentiate those children who do not meet their new online contacts offline from those who do (see Table 17).

Table 17: Logistic regression for the risk of meeting people offline having first met them online

Variables	Mean	Range	Exp(B)
Age of child	13.6	9-16	1.11**
Gender (female = 0)	-	-	.80**
Self-efficacy	2.31	1-3	1.20*
Sensation seeking	1.52	1-3	1.15*
Psychological difficulties (SDQ)	1.42	1-3	1.76**
Number of places where the internet is used	3.72	0-8	.98
Hours online/day	2.1	0.1-4.5	1.09**
Online activities	9.55	0-17	1.04**
Risky online activities	2.24	0-5	1.32**
Risky offline activities	0.72	0-5	1.31**
Number of parental restrictions	1.71	0-6	.90**
Constant	-	-	.01**

Base: all children 9-16 year old who have met new contacts online

*p<.05; ** p < .001

The pattern is almost identical to the first analysis. All else being equal, among those who have met new contacts online, those who are more likely to meet them offline are older, female, have a higher level of self-efficacy and sensation seeking, spend more time and do more activities online. They are also more likely to engage in risky activities (on- and offline) and they face fewer parental restrictions. However, in contrast to the previous analysis, those who are more likely to meet their online contacts offline also have more psychological difficulties. In fact, the odds of meeting new online contacts offline increases by 76% when the level of psychological difficulties increases by one point (on a scale from 1 to 3).

These results suggest that, when it comes to meeting new people online and then offline, all else being equal, both are more likely among children who use the internet more and do more online, who engage in more risky activities online and offline, and who face fewer parental restrictions. When it comes to psychological factors, the risk of meeting new people online and then offline are greater for children with greater self-efficacy and sensation seeking. However, more psychological difficulties are only associated with the risk of meeting

online contacts *offline*. In all, it seems that offline meetings with online contacts is more likely among children who are already more vulnerable to begin with.

Moreover, all else being equal, meeting new people online and then offline is more common among older children and girls. As noted in our other findings, risk increases with age, but the gender finding is a methodological artefact associated with the notion of “all else is equal”: boys are higher on self-efficacy, sensation seeking, risky activities etc. and so controlling for these makes it appear that girls go more to meetings; in fact, there is no gender difference i.e. a similar % of girls and boys report such meetings (see Livingstone et al., 2011:85).

In line with the findings on seeing sexual content online, these findings broadly confirm the **‘usage’ hypothesis (the more use, the more risk – but also the more opportunities)** as well as the **‘risk migration’ hypothesis (those more prone to offline risks are more prone to risk encounters online)**. In comparing to findings for sexual content online, it is noteworthy that psychological difficulties are only associated with the more ‘severe’ risk (of offline meetings, not online ones) – since, after all, so many make new contacts (perhaps friends) online.

As outlined earlier, meeting new contacts online and then offline is not necessarily problematic. Such meetings may carry a risk of harm but they may also represent an opportunity to meet new friends and expand children’s social support network. In the *EU Kids Online* survey, **93% of children who met a new online contact offline were “not at all upset” by it**. However, the minority who were upset or harmed by the experience also merit attention.

In line with the previous section, correlations were conducted to determine whether the same socio-demographic and psychological factors associated with the experience of harm from other online risks (e.g., sexual content) are also associated with harm from meeting new online contacts offline. Hence, age, gender, self-efficacy, sensation seeking and psychological difficulties were correlated with the children’s answers to the question of how upset they felt after meeting a new online contact offline, answers ranged from “not at all upset” (‘0’) to “very upset” (‘3’) (see Table 18).

Table 18: Correlations among factors predicting harm from meeting new online contacts offline

	Range or number (scale) of items	M	Age	Gender	Correlations		
					Self- efficacy	Sensation Seeking	Psych. difficulties
Independent variables							
Age	9-16	12.48	1.00				
Gender	Female = 0	-	-.01	1.00			
Self-efficacy	4 (1-3)	2.19	.23**	.05**	1.00		
Sensation seeking	2 (1-3)	1.35	.17**	.18**	.18**	1.00	
Psychological difficulties	16 (1-3)	1.40	-.03**	-.01	-.14**	.25**	1.00
Dependent variable							
Intensity of harm (offline meetings)	0-3	0.10	-.13**	-.01	-.11**	.02	.19**

** Correlation is significant at the 0.01 level (2-tailed).

Note: All children aged 9-16 who have met a new online contact offline ($n = 1,955$).

With regards to experiencing harm from meeting a new online contact offline, younger children are more likely to be upset than older children. No differences were found between boys and girls. Lower self-efficacy and more psychological difficulties are associated with a higher likelihood of harm (i.e., degree of being upset). Children's levels of sensation seeking were unrelated to the experience of harm.

These findings support the findings regarding harm from sexual content online. They confirm the **'vulnerability' hypothesis that children who are more vulnerable offline are more likely to experience harm from the risks they face online. In the case of meeting new online contacts offline, harm more often results among children who are younger, who have lower self-efficacy and who have more psychological difficulties.**

In contrast to harm from sexual content online, gender plays no role in relation to harm from meeting new online contacts offline. This suggests that girls are only more vulnerable to particular experiences such as those relating to online sexual images or messages.

3.5. Which factors shape experiences of harm and coping?⁶²

This section looks across risks to deal with some of the more novel data collected in this survey: how people respond to risk. One relevant and important concept here is that of 'resilience', around which there is a body of literature dating back to the 1950s focusing on the factors contributing to overcome adversity. First the analysis looks at the evaluation of whether children had a negative experience – that is, harm – as measured by being upset or being bothered and, examined in a more nuanced way now, by considering the severity of being bothered.⁶³ Here, those who did not find the experiences to be negative are considered to be more resilient. Second, the section looks at children's responses in terms of their coping strategies. For example, there are questions about which strategies are more common, both in general and in relation to particular risks, and whether different children adopt different strategies.

⁶² This section is based on analyses conducted by Leen d'Haenens and Sofie Vandoninck.

⁶³ For each of the risks experienced children were asked *how* upset they felt on a scale from '0' (not at all upset) to '3' (very upset).

Table 19: Exposure to online risks and intensity of harm (correlations)

	Sexual images		Sexual messages		Bullying		Meeting new people offline	
	Risk	Harm	Risk	Harm	Risk	Harm	Risk	Harm
Gender (female=0)	.08**	-.11**	.04**	-.17**	-.05**	-.18**	-.01	-.01
Age	.26**	-.23**	.20**	-.19**	.08**	-.01	.22**	-.13**
Self-efficacy	.14**	-.11**	.06**	-.08**	.04**	-.08**	.10**	-.11**
Sensation seeking	.24**	-.02	.22**	-.09**	.11**	-.11**	.19**	.02
Psychological difficulties	.10**	.20**	.13**	.16**	.16**	.13**	.09**	.19**
Online activities	.31**	-.14**	.25**	-.09**	.16**	-.02	.26**	-.01

** p < .001.

Base: Risk - all children who use the internet; for sexual messages only children between 11 and 16 years; harm – all children who use the internet and being exposed to the respective online risk; for sexual messages only children between 11 and 16 years.

Source: This analysis has been conducted by Anke Görzig.

Table 19 shows that the **factors associated with more exposure to online risks are not necessarily related to more harm**. For example, although they have a higher level of exposure to risks, older children and children with higher levels of self-efficacy feel less bothered by both the actual experience of those risks. High levels in sensation seeking and taking part in a range of online activities is also associated with more exposure to online risk but higher levels of sensation seeking is also related to lower degrees in harm by sexual messaging and bullying and taking part in a range of online activities with lower degrees of harm from sexual content risks. Furthermore, although boys more often see or receive sexual images or messages, girls are more sensitive towards these sexual risks, and more likely to say they are bothered (i.e. experience harm). That said, those with higher levels of psychological difficulties⁶⁴ are more likely to experience risks and say they were upset.

Some psychological characteristics are closely associated with the child's level of perceived harm, irrespective of the type of risk with which the child is confronted. **Children higher in self-efficacy are more likely to experience less harm, while children with greater emotional problems experience more harm**. But in some cases, whether socio-demographic or psychological characteristics (gender, age, self-efficacy, psychological

difficulties, sensation seeking) make a difference depends on the risk:

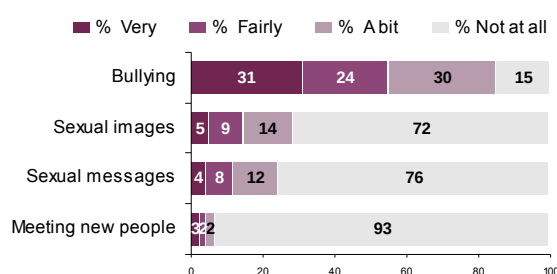
- Sensation seekers are less likely to be very upset when responding to online bullying and sexual messages.
- Children's higher position on the ladder of digital opportunities (that is, range of activities online) is associated with being less upset in response to sexual content online.
- Younger children feel upset more intensely in the case of sexual risks (both sexual images and messages) and meeting new online contacts offline, but age makes no difference in the case of online bullying.
- Girls tend to have a more negative response (intensity of harm) in the case of online bullying and sexual content risks, but when we look at meeting new online contacts offline, the gender difference disappears – boys and girls then appear equally resilient.

When turning to degrees of being bothered, the intensity of harm differed across risk types (see Figure 18). **Online bullying is the online risk that most upsets young people, with 85% of the victims indicating some degree of harm (being upset)**. This is not surprising considering that being bullied was already defined as a

⁶⁴ See www.sdqinfo.org.

harmful event in the questionnaire⁶⁵. As to sexual risks, the intensity of harm for children from sexual images and sexual messages is almost equivalent with 28% indicating some degree of harm from sexual messages and, slightly lower, 24% from sexual images. These findings highlight the fact that **for about three quarters of children sexual content online is not upsetting**. Meeting new online contacts offline is least likely to result in a negative experience and even when bothered, the majority of children only feel a bit disturbed suggesting that meeting new online contacts offline can indeed also offer a lot of positive things for children (e.g., making new friends, increasing ones social support network).

Figure 18: Intensity of harm by risk type



QC118/QC135/QC160/QC172: How upset did you feel about what happened (if at all)? Very upset, Fairly upset, A bit upset, Not at all upset.

Base: All children who use the internet and have encountered the respective risk

Source: This analysis has been conducted by Anke Görzig.

In Table 20, three risks – related to sexual images, online bullying and sexual messaging – were compared with regard to **coping strategies**.

The coping strategies were examined with regards to socio-demographic and psychological characteristics as well as whether they are related to the intensity of harm (degree that the child indicated being upset) and the duration of harm (how long the child had indicated to be upset for⁶⁶).

The different coping strategies used by children were grouped in types. One, called **'fatalistic' or 'passive'**, was most closely captured by the response of **'hoping the problem would go away'**. Despite labelling it fatalistic and passive, we need to understand the children's perspective. They may believe that being bothered or harmed is only temporary and will not cause substantial or long-term harm. This way of coping may also indicate indifference, possibly because they simply accept that sometimes they encounter something unpleasant. This response is **practised by about one in four of those feeling bothered**, and is shown after being bothered by sexual messaging by more boys than girls and among those lower in sensation seeking. After harm from sexual images and online bullying it is more likely shown by those with lower levels of self-efficacy, and after harm from online bullying this strategy is associated with less online activities. For sexual images and online bullying this strategy is also associated with a higher intensity and duration of harm,

The other **'passive' coping strategy, 'deciding to stop using the internet for a while'**, can be interpreted as just avoiding the problem without eliminating the actual cause. On the one hand, seven in ten children going offline for a while after an upsetting experience indicate this strategy was 'helpful' to them. On the other hand, to stop using the internet may be effective in preventing further exposure to unwelcome content or contact, but it also involves missing online opportunities. This strategy is **more common among younger children, children with little self-efficacy, higher level of psychological difficulties and those engaged in few online activities – and those feeling more upset**.

A second type of strategy was **'communicative'**, involving talking about the problem to others. Across most online risks, **girls, younger children, those lower in sensation seeking, and those children who generally feel upset more intensely, tend to be more communicative** when having experienced harm.

The third type of strategy was a **'proactive one'**, either involving the more general 'try to fix the problem' or more internet-specific coping strategies; that is, deleting the message or blocking the sender. In the resilience literature this might be considering a better adaptation to adversity, because it aims to reduce or eliminate further harm in the future. Generally, as the feeling of being upset becomes more intense, children's tendency to proactively

⁶⁵ "Has someone acted in this kind of hurtful or nasty way to you?"

⁶⁶ Responses could range from 1 ("I got over it straight away") to 4 ("I thought about it for a couple of months or more").

try to fix the problem increases. Willingness to tackle problems is also stronger among those with high self-efficacy. Given that some options require skills, **those with who engage in more online activities are also more likely to adopt this option in most cases.**

Does the risk make a difference to the strategy? Of the three main approaches, **the response of communicating with others about the problem is adopted much more across all risks.** That said, this is especially true in the case of online bullying, where 77% report that they talked to somebody when being bullied.

In general children who feel more upset when confronted with risks and those who take longer to get over being upset are more likely to display a response of any kind: whether passive, communicative or proactive. And in one sense, this is understandable – while some may hope the problem will go away, many are more motivated to do something to stop what is problematic to them. This does have the implication, however, that some are taking positive actions that may contribute to their resilience in the future.

Table 20: Use of coping strategies among those feeling bothered (correlations)

	Fatalistic/passive coping strategies						Communicative strategy			Proactive strategies								
	Hope the problem ^a would go away			Stop using the internet for a while			Talk to somebody			Try to fix the problem ^a			Delete the message			Block the person who sent the message		
	Sexual images	Sexual messages	Bullying	Sexual images	Sexual messages	Bullying	Sexual images	Sexual messages	Bullying	Sexual images	Sexual messages	Bullying	Sexual images	Sexual messages	Bullying	Sexual images	Sexual messages	Bullying
Gender female=0	.04	.16**	-.01	-.05	-.03	.01	.00	-.09*	-.17**	.06	-.03	-.09**	.02	-.09*	-.09**	-.04	-.15**	-.10**
Age	-.11**	-.09	.01	-.15**	.01	-.14**	-.13**	-.04	-.04	.03	.03	.00	.05	.04	-.01	.10**	.10*	.07*
Self-efficacy	-.07*	-.03	-.07**	-.04	-.15**	-.10**	.04	.02	.04	.08*	.12**	.08**	.03	.01	-.04	.00	.08	.04
Psych. difficulties	.03	.02	.14**	.17**	.14**	.16**	-.02	.01	-.09**	.08*	.01	.00	.06*	.00	.08**	.07*	.04	.06*
Sensation seeking	-.05	-.10*	.04	.03	.04	-.03	-.06	-.06	-.13**	.09**	.07	-.03	.03	-.01	-.02	.03	.01	-.02
Online activities	.00	.03	-.06*	-.12**	-.09*	-.11**	-.07*	.00	-.04	.06	.10*	.07*	.15**	.11*	.02	.15**	.15**	.12**
Harm intensity	.15**	.06	.09**	.23**	.13**	.14**	.13**	.10*	.20**	.14**	.09*	.19**	.09**	.10*	.13**	.07*	.05	.06*
Harm duration	.13**	.00	.07*	.23**	.25**	.11**	.15**	.17**	.11**	.19**	.04	.08*	.07	.02	.07*	.12**	.00	.06
Total %	26	22	24	25	18	20	53	60	77	22	27	36	26	38	41	23	40	46

^a These questions were only asked of 11-16 year olds.

All children who use the internet and felt upset by the respective online risk; for sexual messages only children between 11 and 16 years.

4. SOCIAL MEDIATION

4.1. What are relevant forms of social mediation?⁶⁷

Parental mediation

The literature on 'parental mediation' of information and communication technologies, that is, the way parents try to influence children's experience of information and communication technologies, has more often considered their attempts to protect children from the harmful effects, for example, of television. In the case of the internet we might also consider parents' attempts to help children to gain more benefit from the online world. Hence a typology for mediating the internet was developed in the project, building on previous work on mediation.

Active mediation of child's internet use includes talking with children about particular media activities or sharing these activities with them. **Active mediation of the child's internet safety** includes guiding children in online safety, either by helping them in case of difficulty, or by telling them what to do in an upsetting or disturbing situation. **Restrictive mediation** involves setting up rules about what children can or cannot do. **Monitoring** involves checking the computer to see what children have been doing, checking children's profiles on a social networking site or the messages in their email or instant messaging account. **Technical mediation of child's internet use** can involve specific software built to filter and restrict certain types of unwanted use.

Almost nine out of ten European children receive advice from their parents about internet use and internet safety, and they have restrictive rules at home. Three quarters of parents adopt technical mediation through the use of parental control or other means of blocking and filtering some types of websites. Monitoring is less frequent, only experienced by half of the children. Parents who are themselves internet users are much more active in mediation of all types than parents who are not (Table

21). The gap is much larger when dealing with advice about safety, while restrictive mediation is not so associated with parental use of internet. Clearly some types of mediation require technical skills (such as helping the child when something is difficult or suggesting ways to behave and act on the internet), while other types of mediation that rely on general rules can be exercised by parents with no internet experience (such as forbidding the child to give out personal information or download).

Table 21: Differences in parental mediation (according to child) between internet-using and non-using parents

% of children that say that parents do:	Parents using the internet	Parents not using the internet	Difference between internet-using and non-using parents
At least one active mediation of internet use	91	72	19
At least one active mediation of internet safety	92	65	27
At least one restrictive mediation	86	82	4
At least one monitoring activity*	53	37	19
Use of parental control or filtering software*	30	18	16

* All children who use the internet at home.

Base: all children who use the internet

Parental mediation decreases as the child grows up.

This is particularly evident in the case of parents' restrictive strategies: 95% of 9- to 10-year-olds say that they experience this as opposed to 71% of 15- to 16-year-olds. Girls also state slightly more often than boys that parents restrict their use (87% versus 83%). Furthermore, children from higher as opposed to lower SES households state more often that parents are active in terms of giving

⁶⁷ This section is based on analyses conducted by Dominique Pasquier, José Alberto Simões and Elodie Kredens.

advice about use and safety. This reflects the earlier point since higher SES parents are more likely to be internet users and hence more likely to be technically competent.

There has been little research on the role of teachers and peers as agents of mediation, so children were asked in the *EU Kids Online* survey what their peers and teachers do to help them in using the internet.

Overview of teachers' mediation

As the earlier report on descriptive findings shows in more detail, children were asked about the kinds of mediating activities undertaken by their teachers at school. One question asked about active mediation in general ('Have your teachers ever talked to you about what you do on the internet?'), another asked about restrictive mediation ('Have your teachers ever made rules about what you can do on the internet at school?'), and the remaining questions asked about mediation of internet safety, using the items also asked about parents (see Annex 3 for details).

- **Around half of children think that their teachers have engaged with their internet use in most of the ways asked about, and 73% of children say their teachers have done at least one of the forms of active mediation asked about (Table 22).**
- Teachers **mostly practise restrictive mediation**. On average, 62% of the children say that their teachers set rules for using the internet at school. There are major differences between northern Europe, where teachers are very strict (for example, over 80% of teachers in Norway, the UK and Finland set rules), and southern countries, where teachers are more permissive (less than 40% of teachers in Spain, Greece and Italy set rules, according to children).
- Only one-quarter (24%) say their teachers have helped when something bothered them on the internet, but doubtless this reflects the relatively few incidents that bother children.
- Still, given the range of questions asked about, it is noteworthy that one in five children who use the internet report that their teachers have not engaged with them in any of these ways at all.

Table 22: Teachers' mediation of child's internet use, according to child

% who say teachers at their school have ever...	9-12 years		13-16 years		All
	Boys	Girls	Boys	Girls	
Helped you when something is difficult to do or find on the internet	55	58	58	60	58
Explained why some websites are good or bad	55	56	60	60	58
Suggested ways to use the internet safely	53	56	60	62	58
Suggested ways to behave towards other people online	45	45	51	50	48
Talked to you about what to do if something on the internet bothered you	38	40	42	42	40
Helped you in the past when something has bothered you on the internet	24	26	24	23	24
One or more forms of active mediation	69	72	75	76	73
Made rules about what you can do on the internet at school	57	60	66	66	62
Talked to you about what you do on the internet	52	54	52	54	53
One or more of all of the above	78	80	83	84	81

QC338: Have any teachers at your school ever done any of these things? (*Multiple responses allowed*)

Base: All children who use the internet

Source: Livingstone et al (2011)

Overview of peer mediation

Some of the same questions regarding forms of mediation have also been asked about children's friends. Previous research has often shown that children would rather turn to their friends than to an adult when something online



bothers or worries them.⁶⁸ But little is known about whether or how children really support each other in terms of internet safety.

Table 23: Peer mediation of child's internet use, according to child

% who say friends at their school have ever...	9-12 years		13-16 years		All
	Boys	Girls	Boys	Girls	
Helped you when something is difficult to do or find on the internet	57	59	66	71	64
Suggested ways to use the internet safely	39	41	47	47	44
Explained why some websites are good or bad	39	40	42	45	41
Suggested ways to behave towards other people online	33	35	39	42	37
Helped you in the past when something has bothered you on the internet	26	25	28	33	28
One or more of all of the above	68	69	77	79	73

QC336: Have your friends ever done any of these things? (Multiple responses allowed)

Base: All children who use the internet

Source: Livingstone et al (2011)

- **Three-quarters (73%) of children say their peers have helped or supported their internet use in at least one of the five ways asked about (Table 23).**
- As with teachers, this suggests that children do consider other children quite supportive in general, more so in the case of older children.
- **Peers are much more likely to mediate in a practical way, helping each other to do or find something when there is a difficulty (64%).** Fewer say that peers help when they are bothered by something (28%), but as noted before, this may

reflect the fact that few are bothered. Moreover, this finding is slightly higher than in the case of teachers.

Comparing sources of social mediation

If parents are the main agents of mediation about safety, the role of teachers also appears to be important, as seen in Table 24. Moreover, data show that this role of teachers overtakes that of parents for older teenagers and for children from lower SES homes. This is a major finding that should lead public policies to more information campaigns targeted at teachers, especially in countries where teachers are little involved: the data show major differences between countries. For example, more children in the UK say that their teachers are active for giving safety advice (83%) as compared to children in France and Romania (40%).

Other relatives are also slightly more important (47%) for safety advices than peers (44%). The role of mass media is low (only 20%), and the importance of resources on the web is even lower. **Thus, altogether, safety issues are covered mainly by adults present in children's everyday lives.**

Table 24: Different sources of advice on security, according to child (%)

Different sources of advice on security	Gave advice or suggested ways to use the internet safely
Parents	63
Teachers	58
Other relatives (adults or young)	47
Peers	44
Television, radio newspapers or magazines	20
Websites	12
Someone whose job is to give advice over the internet	9
Internet service provider	6
Youth or church or social worker	6
Librarian	6

Base: All children who use the internet

⁶⁸ Livingstone, S. (2009) *Children and the internet: Great expectations, challenging realities*, Cambridge: Polity Press; Nathanson, A.I. (2001) 'Parents versus peers: exploring the significance of peer mediation of antisocial television', *Communication Research*, 28(3), 251-74.

Mediation agents also vary by *the type of problem concerned* (see Table 25). Peers are almost as important as parents when children find something difficult to do or find online. Teachers are almost equal to parents in giving safety advice and in suggesting ways to behave towards other people online.

Table 25: Help from parents, teachers and peers, according to child (%)

% who say that parents/teachers/ peers ...	Parents	Teachers	Peers
Explained why some websites are good or bad	68	58	41
Helped you when something is difficult to do or to find on the internet	66	58	64
Suggested ways to use the internet safely	63	58	44
Suggested ways to behave towards other people	56	48	37
Talked to you about what to do if something on the internet bothered you	52	40	NA
Helped you in the past when something has bothered you on the internet	36	24	28

Base: all children who use the internet

Last, there are variations linked to the coping strategies used by children. Talking to someone is one of the strategies used by children when confronted with a risk. Table 26 shows that risks linked to sexual content online (sexual images or sexual messages) are less talked about with someone than risks linked to unpleasant communication or unpleasant meetings: 77% of those who had been bullied talked to someone versus 53% of those who had seen sexual images.

Table 26 also shows the major role of peers when seeking social support (talking to someone): **it is friends that children turn to at first, whatever the type of risk**. Intra-generational social support in the family (talking to siblings) is unexpectedly low, compared to the role played

by peer groups and compared to the frequency of turning to parents. Around a quarter of children talk to their parents when seeing sexual images and receiving sexual messages, 40% when being bullied and 28% when being bothered after meeting offline an online contact. There are no equivalent adult interlocutors, even among teachers, who play an important role for safety advice.

The most surprising finding when comparing agents of mediation is the **important role of parents, not only for giving advice or setting rules, but also for being turned to for social support when the child feels bothered by something on the internet**. Although not completely in line with many studies pointing at the autonomous nature of children's culture on the internet, we see a pattern where parents are still present, being accepted as qualified authorities and being turned to when children face problems.

Table 26: Who the child talked to when... (%)

Who the child talked to when...	Seeing sexual images	Being bullied	Seeing or receiving sexual messages	Being bothered when meeting an online contact offline
Talked to anyone at all	53	77	60	62
A friend	33	50	37	35
Mother/father	25	40	29	28
Brother/sister	9	13	8	11
Another adult I trust	5	8	5	10
A teacher	3	7	2	6
Someone whose job it is to help children	1	2	2	2
Someone else	-	-	1	4

Base: All children who use the internet

4.2. How are different forms of parental mediation related to risk and harm, and skills and opportunities?⁶⁹

Previous studies have stressed that applying restrictions (that is, rules about internet use) was an effective parental mediation strategy, while others have claimed that active mediation, for example, communicating with children, was also effective (and some would say even more desirable). In the *EU Kids Online* analysis different forms of parental mediation were examined separately to see how they are related to the experience of risks and harm. In addition, there is the question of whether parental mediation is related to children's digital skills and online opportunities.

There are some limitations for this kind of analysis. First, nearly all children report that their parents use a combination of different mediation strategies, which makes it impossible to isolate some strategies from others. Second, it is important to bear in mind the child's perspective: **7% of children say that they ignore what their parents say about the internet and 29% ignore it to some extent; 30% claim parental mediation does not help them at all.**

⁶⁹ This section was written by Maialen Garmandia, Carmelo Garitaonandia, Gemma Martínez Fernández and Miguel Angel Casado.

In Figure 19 we can see the percentage of children who have reported at least one out of the seven risks covered by the *EU Kids Online* survey⁷⁰ as related to the use of mediation strategies by their parents. In the case of parental mediation strategies we have compared children who have reported at least one out of all of the different activities of the type of mediation, and those who have not.

Considering these variables, most of the mediation strategies have a significant relationship with risk exposure.⁷¹

Overall, it is difficult to observe a clear tendency among percentages. Even though the difference in percentages is not high, it is significant ($p < 0.05$). The highest difference in risk exposure appears in the case of restrictive mediation where children who have reported it show a lower risk incidence.

In the case of active mediation, however, children who report this mediation strategy show a slightly higher level of risk. In the case of monitoring and technical mediation,

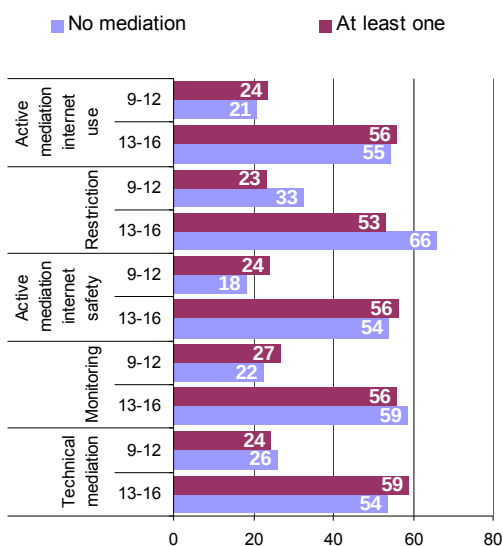
⁷⁰ The seven online risks reported were sexual images, sexual messages, bullying, meeting new contacts online, meeting new online contacts offline, harmful user-generated content, and personal data misuse.

⁷¹ The Chi-square analysis shows significant relationship ($p < 0.05$) for all cases except for technical mediation of 9- to 12-year-old children and active mediation of internet use of 13- to 16-year-old children.

age seems to have a key role. Nine- to 12-year-olds, who report being monitored, show a lower risk incidence, whereas among 13- to 16-year-old children, risk exposure is higher for those who do not report mediation.

In the case of technical mediation, 13- to 16-year-old children, whose parents report technical mediation, have a higher risk incidence, while among 9- to 12-year-old children, there is no clear difference.

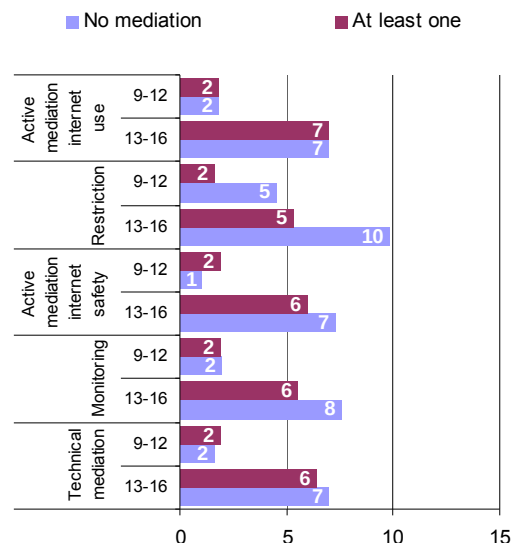
Figure 19: Parental mediation and children's risk exposure on the internet



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

In our research we also considered the role of **children as perpetrators**. In this case we refer to children who have sent sexual messages or who have bullied others. As Figure 20 shows, only restrictive mediation, active mediation of internet safety and monitoring (just for 9- to 12-year-olds) show a significant relationship (based on Chi-square analysis, $p < 0.05$) with the role of a child as perpetrator. Regarding the level of exposure, here again, **restrictive mediation shows the highest difference among mediated and non-mediated children**.

Figure 20: Parental mediation and children being perpetrators



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

In line with the analysis for risks, in the case of **harm**, we compared the overall experience of harm on the internet⁷² reported by children among those children who had reported mediation and those who had not. Figure 21 shows significant relationship ($p < 0.05$) for monitoring (for both 9- to 12- and 13- to 16-year-old children). It is also significant in the cases of technical mediation, active mediation of internet use and active mediation of internet safety (13- to 16-year-olds) as well as of the restrictive strategy (9- to 12-year-olds).

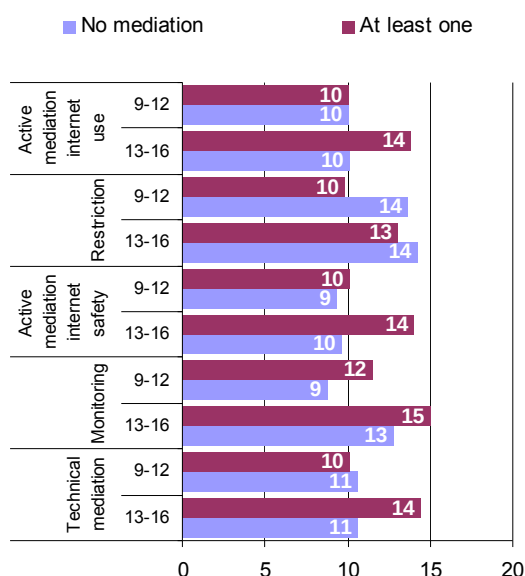
In most cases the experience of harm overall is higher among children who report some mediation. Only in the case of restrictive mediation do children who report mediation have a lower incidence of harm.

These data may suggest that for those children who state an overall experience of harm, the fact that their parents knew about it caused them to pay more attention to their children's internet experiences, meaning higher levels of mediation of the child's online activities. In fact, further analysis shows that mediation is higher for children who

⁷² Children were asked: "In the past 12 months, have you seen or experienced something on the internet that has bothered you in some way?".

told their parents about the harm suffered than for those who did not tell them (see Table 20, section 3.5.).

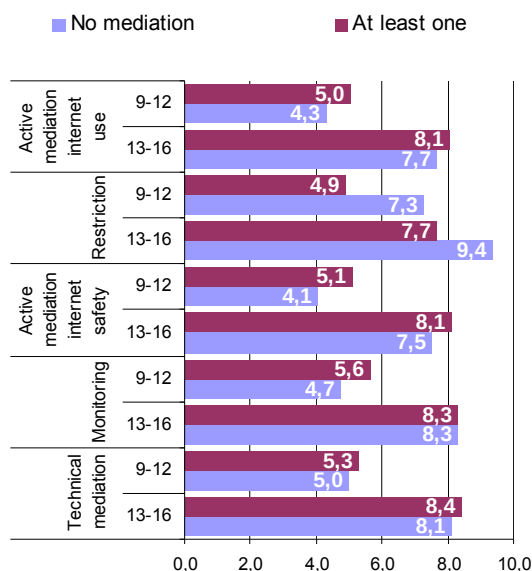
Figure 21: Parental mediation and children's overall harm experience



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

As far as the **number of online activities** (out of 17, see section 2.3) is concerned, parental mediation goes hand in hand with children's activities as the average number of activities is higher among the children who have experienced mediation (see Figure 22). Restrictive mediation is the only exception here: those children who have been restricted by their parents from certain internet activities have taken up a smaller number of online opportunities than those who have not been restricted. In all cases the differences between means are significant ($p < 0.01$), except for active monitoring in the older group (13- to 16-year-olds). So we can state that most mediation types go hand in hand with children's engagement in more activities online, especially among the younger children, whereas restrictive mediation has the opposite relation: if parents practise a restrictive strategy, the number of children's online activities is lower.

Figure 22: Parental mediation and number of children's online activities last month

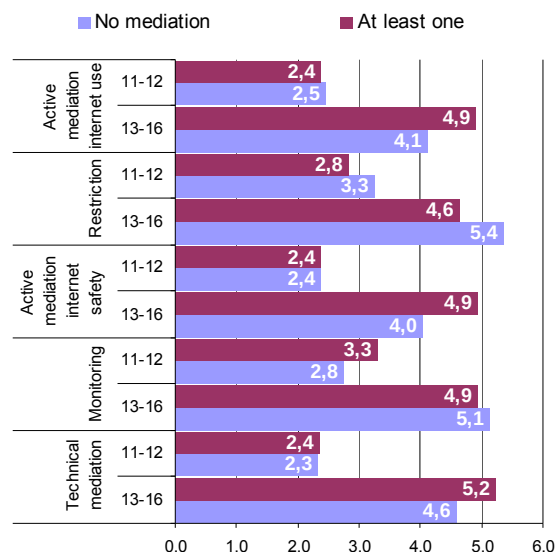


Base: All children aged 9-16 who use the internet

As far as **digital skills** (out of 8, see section 2.4) are concerned, the pattern is very similar (Figure 23): mediated children – with the exception of those who had experienced restrictive mediation – hold more skills than the non-mediated ones. The differences in the average number of skills by children are significant ($p < 0.01$) for all mediation types and age groups.

So, as a whole, we have shown that restrictive mediation is negatively related to the average number of online activities and digital skills of children of all age groups⁷³, whereas other mediation types are positively related to both activities and skills.

⁷³ Please note that for this analysis the younger age group includes only 11- to 12-year-old children because questions about skills were not asked from 9- to 10-year-old children.

Figure 23: Types of parental mediation and children's digital skills

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

Finally, there is the question of whether combining different mediation strategies has an effect. It seems that sometimes the combination of strategies is negatively related to risk, for example, seeing sexual images was less frequent when four strategies were used instead of one. However, using multiple strategies actually correlates with children experiencing more harm, which would fit the hypothesis that parents are more active after the child has experienced harm.

The findings may be summarised as follows:

- Many forms of mediation are related to the experience of risks, including risks of being a perpetrator, such as bullying others, but this is in part due to the large sample making statistical differences significant. When individual age groups are examined (9-10, 11-12 etc), **restrictive mediation is the only type of strategy that is negatively related to the experience of risks among all age groups.**
- In the case of harm, **only children who report restrictive mediation by their parents are less likely to have harmful experiences. For the other forms of mediation the opposite is true.** Although it is difficult to explain this fact, changes in parental mediation as a consequence of some exposure to risk might be the reason for this finding.

- Regarding opportunities, the most significant aspect is that **restrictive mediation is negatively related to the average number of children's online activities and digital skills.**

In sum, although mediation, more so with applying restrictions, may reduce risks, there is no evidence that it reduces harm among those who experience risks. Moreover, it may well be that restrictions, in particular, limit positive outcomes. This reminds us that we have to be careful and not too narrow-minded in judging 'effectiveness' – while a strategy may be somewhat effective in achieving a specific purpose such as risk reduction, it can have other important negative side-effects, and so effectiveness has to be evaluated more broadly.

4.3. How is mediation by teachers and peers related to children's skills and opportunities and online risks and harm?⁷⁴

Compared to the longer tradition of parental mediation studies, research on teachers' influence on children's use of (new) media is more recent, and there are even fewer studies of peer mediation. The studies that exist suggest that teachers are mainly concerned with internet safety. Although they often use restrictive strategies, they also promote certain types of internet use (mainly information gathering from [homework] assignments), although they are less likely to promote activities such as content creation. The few studies that exist suggest that peers may be less active in helping each other, but more influential in motivating each other to use the internet and providing information about what is possible.

Our study explored, on the one hand, to what extent support from teachers and peers is related to children's scope of making use of online opportunities and their level of digital literacy and safety skills. On the other hand, we aimed to find out whether and how teachers' mediation and peer mediation are related to online risks and harm as experienced by children.

Teachers' mediation was measured by eight questions, each of them indicating a particular mediating activity. One question asked about *restrictive mediation* ('Have

⁷⁴ This section was written by Veronika Kalmus, Cecilia von Feilitzen and Andra Siibak.



your teachers ever made rules about what you can do on the internet at school?'), one question focused on *active mediation of the child's internet use* ('Have your teachers ever talked to you about what you do on the internet?'), and the remaining six questions asked about *active mediation of the child's internet safety* (see Annex 3 for details). Positive answers to these eight questions were summed into the *index of teachers' mediation*.

Peer mediation was measured by five questions on *active mediation of internet safety* (see Annex 3). Positive answers were summed into the *index of peer mediation*.

Teachers and peers supporting skills and opportunities

To explore how strongly teachers' mediation versus peer mediation are related to children's digital skills and the range of their online opportunities, we started with correlation analysis. Figure 24 shows that the index of teachers' mediation and the index of peer mediation are positively correlated with the number of children's digital literacy and safety skills (measured by the index of eight specific skills, asked only of the 11- to 16-year-olds, see section 2.4), and the number of online activities (measured by the index of 17 online activities undertaken by children in the past month, see section 2.3). Correlations also remain statistically significant when controlling for age. Thus, **support from teachers as well as from friends goes hand in hand with the advancement of children's digital skills as well as the range of online activities they undertake. The correlations, however, are within the range of a small effect, which suggests that there are other influences on children's digital skills and opportunities apart from teacher and peer mediation.**

Figure 24: Correlations between the indexes of children's digital skills and online activities, and mediation by teachers and peers

	Teachers' mediation		Peer mediation	
	<i>r</i>	Partial correlations*	<i>r</i>	Partial correlations*
Skills	0.12	0.10	0.10	0.07
Activities	0.10	0.07	0.15	0.12

*Controlled for child's age.

All correlations are significant at $p < 0.001$.

Base: All children who use the internet

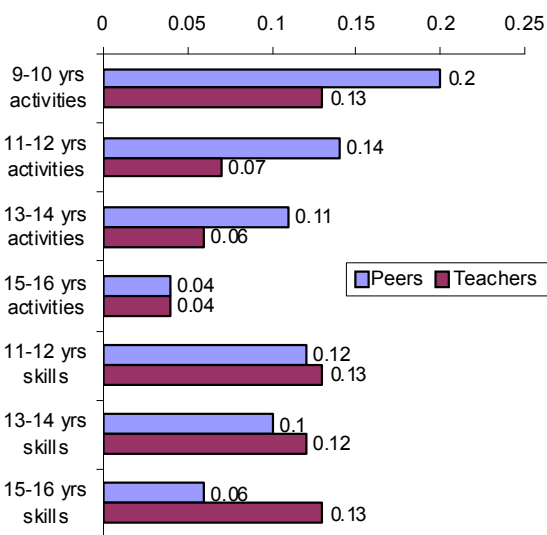
To analyse whether particular mediating activities, practised by teachers and peers, work in the same direction, we compared the mean values of the indexes of children's digital skills and online activities in two groups: children who had reported a specific mediating activity and those who had not. **Almost all particular mediating activities, undertaken by teachers and peers, are positively related to children's digital skills and online activities:** the mean values of the respective indexes are significantly higher ($p < 0.001$) among the groups of children who had reported a specific mediating activity compared to those who had not. In the case of one item of peer mediation 'Have your friends ever explained why some websites are good or bad?', the difference of the mean values of the index of digital skills is not significant. Only one particular mediating activity by teachers, 'Have your teachers ever helped you in the past when something has bothered you on the internet?', works in the opposite direction with regard to developing children's digital and safety skills: those children who had reported this mediating activity demonstrated a lower mean value of skills ($M=4.09$, $SD=2.76$) than those children who had not ($M=4.21$, $SD=2.64$; $p < 0.01$). Less highly skilled children probably face a greater need to turn to their teachers for help when something bothers them on the internet.

To analyse demographic variation in the effectiveness of teachers' and peer mediation we compared the correlations between the indexes of children's digital skills and online activities, and mediation by teachers and peers

in age groups (Figure 25) and among boys and girls (Figure 26).

The teacher's role associated with children's skills remains almost constant across children's age, while their relation with children's online opportunities diminishes when children get older (Figure 25). Also, the importance of peer mediation, both for skills and activities, decreases when children grow older.

Figure 25: Correlations between mediation by teachers and peers and children's digital skills and number of online activities (in age groups)

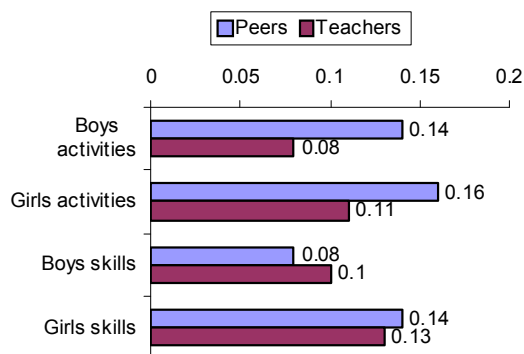


Pearson's correlations; $p < 0.001$.

Base: All children who use the internet

Support from teachers and support from friends are slightly more important for girls than for boys, especially regarding the advancement of digital skills (Figure 26). This finding is expected, given that girls tend to be less self-confident regarding their digital skills (see, for example, Henwood et al, 2000⁷⁵) and may therefore be more eagerly searching for as well as more receptive to social support.

Figure 26: Correlations between mediation by teachers and peers and children's digital skills and number of online activities (for boys and girls)



Pearson's correlations; $p < 0.001$.

Base: All children who use the internet

Teachers' and peer mediation as related to online risks and harm

To explore how strongly teachers' and peer mediation are related to children's experiences of risks and harm online, we analysed point biserial correlations between the indexes of teachers' mediation and peer mediation, a general measure indicating children's encounters with any of seven online risks⁷⁶, and overall experience of harm on the internet (i.e., the question 'In the past 12 months, have you seen or experienced something on the internet that has bothered you in some way?').

According to Table 27, the indexes of teacher mediation and peer mediation are very weakly but positively related to online risks and harm, that is, risks and harm are a little more likely to occur together with more teacher or peer support. Three of the positive correlations remain significant although even weaker, after inserting the control variables.

⁷⁵ Henwood, F., Plumeridge, S. and Stepulevage, L. (2000) 'A tale of two cultures? Gender and inequality in computer education', in S. Wyatt, F. Henwood, N. Miller and P. Senker (eds) *Technology and inequality: Questioning the information society*, London and New York: Routledge, pp 111-28.

⁷⁶ The seven online risks reported were sexual images, sexual messages, bullying, meeting new contacts online, meeting new online contacts offline, harmful user-generated content, and personal data misuse.

Table 27: Correlations between the indexes of mediation by teachers and peers, and children's experiences of online risks and harm

Overall experience of:	Teachers' mediation		Peer mediation	
	Point biserial correlations r_{pb}	Partial correlations*	Point biserial correlations r_{pb}	Partial correlations*
Risk	0.05	NS	0.09	0.03
Harm	0.06	0.05	0.07	0.05

* Controlled for a child's age, time spent on the internet, the number of online activities and digital skills.

Correlations are significant at $p < 0.001$; NS: not significant

Base: All children who use the internet

To find out whether relations between each particular mediating activity by teachers and peers and the general measures of risk and harm reveal anything else, we analysed Phi coefficients (see Table 28).

Table 28 shows that the correlations between particular mediating activities and the measure of children's experience of any risks are mostly non-significant, whereas the correlations with children's experience of harm are mostly positive, although still very weak. However, one positive correlation stands out as having a small effect; namely, that harm is related to the statement 'Friends have helped you in the past when something has bothered you on the internet' (Phi=0.13). This correlation is even stronger among 13- to 14-year-olds (Phi=0.16) and 15- to 16-year-olds (Phi=0.15; all significant at $p < 0.001$). More concretely, children who had experienced harm on the internet answered more often (46%) 'Yes' to this statement than other children (24%). This particular finding suggests that when children have experienced harm, they often turn to their friends *afterwards* to discuss it. This interpretation is also supported by the analysis of the main sources of social support (see Section 4.1).

Table 28: Correlations (Phi coefficients) between the indicators of mediation by teachers and peers, and children's overall experiences of online risk and harm

	Teachers' mediation		Peer mediation	
	Risks	Harm	Risks	Harm
Helped you when you found something difficult to do or find on the internet	NS	0.03	0.05	0.03
Explained why some websites are good or bad	-0.02 *	0.04	NS	0.03
Suggested ways to use the internet safely	NS	0.04	NS	NS
Suggested ways to behave towards other people online	NS	0.02 *	NS	0.03
Helped you in the past when something has bothered you on the internet	NS	0.05	0.07	0.13
Made rules about what you can do on the internet at school	0.02*	0.03	NA	NA
Talked to you about what you do on the internet	NS	0.04	NA	NA
In general, talked to you about what you would do if something on the internet ever bothered you	NS	0.04	NA	NA

* Correlation is significant at $p < 0.05$; all other correlations are significant at $p < 0.001$. NS: not significant; NA: not available.

Base: All children who use the internet

In general, the statistical relationships between teachers' and peer mediation on the one hand, and the children's experiences of risks and harm on the other, are very weak. Thus, there is little evidence that teachers' and peer mediation would reduce the probability of children's negative online experiences. **Rather, the study supports a tentative hypothesis about the retroactive mediating role played by peers (and teachers): when children have experienced harm online, they turn to friends or, more seldom, to a teacher to discuss it afterwards.**

The analysis also implies, given that support from teachers and friends is positively, although weakly, correlated with children's digital literacy and safety skills, that these two types of social mediation, particularly the role played by teachers, have considerable potential for contributing to preventing online risks and harm through further advancement of children's online media competences.

5. CONCLUSIONS

While previous sections have presented in-depth analyses on specific areas of the *EU Kids Online* research field, this final part deals with more comprehensive perspectives. After working with the extraordinarily rich dataset that recognises the complexity of children from different backgrounds and different countries, it became quite clear that there can be no one single model of children's experiences of online risks and online opportunities. Therefore, we here summarise some of the 'big stories' revealed by the empirical findings and which have practical implications.

5.1. Age and social background matter⁷⁷

Despite general claims about the current generation of children being more naturally engaging with the internet (as 'digital natives'), previous studies have underlined how there are in fact differences in children's experiences, one key factor being the persistent effects of social stratification. Hence a number of hypotheses were explored in the *EU Kids Online* data, focusing mainly on parents' formal level of education (here, of the parent interviewed) as a factor that had been identified in past research as a measure of that stratification. How the age of the child interacts with that is also of interest.

As expected, **parents with a higher level of education are more confident in using the internet.** They also make more use of active mediation strategies, while parents with a lower level make more use of restrictive, monitoring and technical ones. Other research in media socialisation in more general terms has suggested that this is because they have less confidence and time to actively support their children through conversations, and hence they turn to the other strategies. Unfortunately, in the *EU Kids Online* study, it seems that the latter three strategies correlate with the child actually being less competent in using the internet (see Section 4.2). It looks as if it is more these strategies that lead to the children

whose parents have a lower education to be less competent, rather than the active mediation strategies of higher education parents. But to put this all into perspective, **child-related factors such as age appear to be more influential than parental mediation practices.**

The older the child, the older the parents and, of particular interest here, **the lower the parent's education level, the more the child claims to know more about the internet than their parents.** Despite that claim by children of parents with a lower education level, when looking at actual internet competence, the gap between children of higher and less educated parents grows larger as the children grow older, in favour of the former.

Looking more closely at the changes with age, it becomes apparent that the differences between younger and older children begin with access and use, since for younger children use is generally in a public place, while for older teenagers, use is often private (in their bedroom or on a mobile device). **Although teenagers go online for much longer per day, younger children seem to be going online ever earlier in their lives,** having first used the internet at the age of seven, whereas the oldest group went online only by the age of 11.

Nonetheless, the youngest group is notably less confident that they know a lot about using the internet compared with their parents, and even among 11- to 12-year-olds, fewer than half say they have the basic skills needed for online safety – on average they report having just one of the eight skills we asked about. Whether this is the cause or effect of their narrower range of online activities is hard to say: certainly teenagers engage in a wider array of online activities than younger children. Since young children are now going online, it seems timely to increase the effort to increase their digital literacy – both through education and by encouraging more diverse internet use. In this context, the notable dissatisfaction of the 9- to 10-year-olds with online provision for their age group also invites policy attention.

Going online early, in advance of adequate skills or online provision, may in itself be risky for the youngest children

⁷⁷ This section is based on analyses conducted by Ingrid Paus-Hasebrink, Cristina Ponte, Andrea Dürager and Joke Bauwens.

we surveyed. Some of their activities online should be considered in this context – while it is unsurprising that three-quarters of teenagers use social networking, it is less expected, especially given the degree of under-age use this may imply, that one-quarter of 9- to 10-year-olds also do so, especially as these children are no more likely to keep their profile private than any other age group. While their lack of technical and critical skills may pose risks for younger children, for teenagers it is their orientation to online communication that might pose risks as much as they open up opportunities: as they grow older, children become more likely to see the internet as a means of ‘being oneself’ or talking about private or intimate matters. Older teenagers are also more likely to communicate online with people they only know online, even though for all age groups most communication is with people also known face-to-face.

Older teenagers are four times more likely than the youngest children to have seen pornography, online and offline, and online the sexual images they have seen are more explicit. However, among those who have seen sexual images online, the younger children are more likely to be bothered or upset by this than are older teenagers, and they are more likely to be upset by online bullying. Interestingly, older children are slightly more likely to be bullied on the internet but not face-to-face, where bullying is almost as common among 9- to 10-year-olds as among 15- to 16-year-olds. These older teenagers are, however, more likely than 9- to 10-year-olds to say that they have bullied others, on or offline. We did not ask the youngest group about exchanging sexual messages, a decision that seems justified given the finding that very few of those aged 11-12, the next youngest age group, have seen or received such messages, this practice being more common (although still only for minority), and also more explicit in terms of content, among teenagers. Finally, we note that children are more likely to encounter potentially harmful user-generated content (such as hate and suicide sites) and, less strongly, personal data misuse as they get older. **Overall, it may be concluded that older children encounter more online risks but are, at the same time, better equipped to deal with them.** Older teenagers should be the focus of safety measures, therefore, because their risk of harm is higher in terms of incidence; younger children should be the focus of safety measures because the potential severity – their subjective

perception of harm – tends to be greater, and because they are less well equipped to manage risks themselves.

5.2. Online and offline risks are closely linked

The important role of the social context of the household demonstrated in the previous section emphasises that online behaviours cannot be regarded as ‘cyber-activities’ being separated from the offline world. The analyses in this report have provided strong evidence that **online activities and experiences are closely linked with offline activities and experiences.**

This can be illustrated by the findings for bullying and seeing sexual images online. At first sight, these are seemingly very different experiences, but these are two areas where the study also asked questions about offline as well as online experiences, that is, traditional bullying and seeing sexual images offline. In both cases, there is a strong link between offline and online experiences – being bullied offline increases the changes of being bullied online 15 times and seeing sexual materials offline increases the chance of seeing them online 17 times. In fact, in both cases, having the offline experience is a greater predictor of online experiences than the key socio-demographic and psychological factors outlined before, supporting the view that there is continuity between risks experienced in the offline and online worlds.

This is supported by the finding that Risky offline activities are slightly positively correlated with the likelihood to encounter any of the online risk, investigated in this study.

There was also one, perhaps less expected, result that applies to both areas of risk: experiencing traditional bullying is associated with less harm being experienced as a consequence of online bullying, and seeing sexual images offline is associated with less harm being experienced through seeing sexual content online. In other words, the children who had offline experiences seemed less bothered or upset by online ones. Therefore, there seems to be a transfer of coping abilities from the offline to the online world.

5.3. Predictors of risk are not predictors of harm

One of the basic conceptual decisions of the *EU Kids Online* network when it designed this survey was a clear distinction between risk and harm. Risk refers to any kind of behaviour or experience, which – from the perspective of an observer – might lead to harm, but is not necessarily linked with harm. To the contrary, in fact: risks may lead to positive experiences in terms of learning or an increase in self-confidence and self-efficacy. As a consequence many findings throughout the report show that predictors of risk are not the same as the predictors of harm.

The following variables are mostly **positively correlated with the likelihood of encountering risks, while they are negatively correlated with experiencing harm** as a consequence of risk encounters:

- age
- gender (boys)
- parents' education, SES
- personal characteristics: sensation seeking, self-efficacy
- amount of online use and range of online activities
- online skills.

Throughout the analyses there is one remarkable exception from this pattern: **psychological difficulties tend to be predictors of risk as well as of harm.**

These findings emphasise the dynamic interplay between contextual and individual conditions, which may – for many children – take a positive direction, including mutual stimulation of self-efficacy, sensation seeking, a wide range of online opportunities and skills, but which may also – for a few children – take the character of a vicious circle of a lack of self-efficacy, encountering upsetting experiences, avoiding certain online opportunities and low online skills. This leads to the following general observation.

5.4. Some children are more vulnerable – across risks, offline and online

Throughout the report many findings have supported a '**vulnerability hypothesis**', according to which **some children are particularly vulnerable with regard to negative (online or offline) experiences.** As for the case

of bullying and seeing sexual content, it could be shown that there are quite a few factors that influence both areas of risk, as noted earlier – age, hours spent online, sensation seeking, self-efficacy, psychological difficulties and Risky offline activities. For both risks, the commonality is that having emotional problems is associated with being more bothered by the experience.

These kind of findings together with the observations presented in previous sections, which emphasise the links between offline and online risks and across the different risks and the – positive or negative – dynamic of the interplay between contextual and individual factors, lead to the following conclusion. With regard to socio-political recommendations it is crucial not to stay with single factors, but to consider the comprehensive dynamic of the factors involved and, on the one hand, **to stimulate the strengthening and empowering factors**, and, on the other hand, **to identify those children who are most likely to run into the negative dynamic of challenging social contexts, psychological problems, a lack of skills to make use of opportunities and upsetting experiences.**

5.5. Social mediation works but...

Findings with regard to social mediation have shown that the occurrence of different kinds of parental mediation or of teacher and peer mediation cannot be regarded as isolated factors, which can explain different kinds of risk or harm. The fact that higher degrees of mediation – except for restrictive parental mediation – tend to go along with higher levels of risk and harm point to the fact that social mediation is an integrated part of the children's everyday lives and online experience and, particularly, that negative experiences might lead to higher degrees of mediation.

Another ambivalence with regard to social mediation is the fact that restrictive mediation seems to be effective in terms of being linked with lower levels of risk and harm, but at the same time it is clearly linked with lower degrees of the children's online activities and skills. Thus this kind of mediation might reduce risk, but it definitely reduces opportunities.

5.6. Combining patterns of online use and patterns of online risks and harm

Given the complexity of the findings presented in this report a final effort is to provide a rough overview of how different patterns of online use are related to the experience of risk and harm. We take up the six user types identified in Section 2.7, and compare them with regard to some indicators of risk and harm (see Table 29).

The six user types vary significantly with regard to most of the indicators of risk and harm.

The **'Low use/learning oriented'** cluster included younger children with a small amount of online use and a small range of activities. Risky activities are very unlikely, and only a few have their own profile on a social networking site. With the exception of schoolwork, most of the activities do not happen very often. Next to schoolwork and watching video clips, reading or watching the news is the second most popular activity. *For this group all the risk indicators are very low, while the indicators for harm are quite high; particularly for sexual content and meeting new people the likelihood that risk is connected with harm is higher than in any other group.*

The **'Low use/social networking site oriented'** cluster also includes younger children; the relevant differences to the first cluster are the low values for schoolwork as well as for reading/watching the news, and the higher likelihood to visit social networking site profiles. *All indicators for risks are moderately higher in this group than for the first one. The most marked difference concerns meeting new people offline: this group is far more likely to meet new people – and far less likely to be upset by these experiences.*

The **'Moderate use'** cluster, on average 1.5 years older than the first two clusters, spends more time with the internet and has a considerably bigger range of activities., though not as many as the other three groups described below. In this group no specific activities are particularly frequent, *but all risk indicators are higher than in the first two groups.*

The **'Diverse and risky opportunities'** cluster, on average aged 13.4 years, has the biggest range of activities and also the biggest number of risky online activities. They are most likely to read/watch news, to download music or films, to send or receive emails, to

play games with others and to use a webcam. In particular the less popular, more creative activities are by far most frequent in this group: create avatars, use file-sharing sites, spend time in virtual worlds and write blogs or diaries. Although this group is younger than the other two high-risk groups (see below), and the amount of use is considerably lower than in the 'High use/entertainment oriented' group, *we generally find the highest level of risk experiences – and, at the same time the lowest likelihood that risk is linked with negative experiences.*

The **'High use/entertainment oriented'** cluster, on average aged 14 years and including more boys than girls, is characterised by the longest duration of daily online use, while the range of activities is lower than in the previous cluster. Playing games on their own or against the computer and watching video clips are the two specific activities with the highest values among all clusters. Comparatively low are the figures for schoolwork, reading/watching the news and all activities related to producing or publishing, such as writing blogs or diaries or posting messages. *The likelihood of risk experiences is also quite high, including the index for excessive online use.*

The **'Focused social web use'** cluster, being the oldest one (14.2 years), and including more girls than boys, is slightly above the average regarding the amount of internet use and the range of activities. The most obvious characteristic is the almost complete absence of gaming activities. On the other hand, they are most likely to visit social networking profiles. Some other activities are almost as frequent as in the 'Diverse and risky opportunities' group: reading/watching news, instant messaging, posting photos or music, writing blogs or diaries. *The likelihood of risk experiences is similar to the two previous groups, but as a rule (except from the parents' perspective), slightly lower. On the other hand they are slightly more likely to feel bothered about risky experiences.*

When interpreting these results it is important to keep in mind that all clusters include children and young people from all age groups, which means that within the three usage clusters, which are characterised by high risk levels, there are also some younger children.

In all, this overview points to one of the main lessons to be learned from the survey, that **we cannot discuss the potential risks of 'the' internet in general**, but that we have to **distinguish different patterns of usage, which**

are linked to different patterns of risk, harm experience and coping. Future analyses of the *EU Kids Online* network will continue to follow this path.

Table 29: Indicators of risk and harm for different user types

		Online user types (see section 2.7)						
Indicators for risk and harm	Base	Low use / learning oriented	Low use / SNS oriented	Moderate use	Diverse and risky opportunities	High use / entertainment oriented	Focused social web use	Phi
Negative experiences in general								
QC110: In the past 12 months, have you seen or experienced something on the internet that has bothered you in some way?	All, 9-16	6	8	10	17	16	16	.16
QP228: As far as you are aware, in the past year, has your child seen or experienced something on the internet that has bothered them in some way? (Parents' answers)	All, 9-16	5	6	7	10	10	12	.13
Children who have experienced any of the seven risks (%)	All, 9-16	16	24	42	68	66	67	.44
Risk and harm related to sexual content								
QC131: Have you seen these kinds of things (sexual content) on any websites in the past 12 months?	All, 9-16	5	5	11	27	23	23	.28
QC134: In the LAST 12 MONTHS have you seen any things like this (sexual content) that have bothered you in any way?	All, 9-16	2	2	3	7	7	7	.26
QC134: In the LAST 12 MONTHS have you seen any things like this (sexual content) that have bothered you in any way?	Those who have seen sexual content online, 9-16	50	42	31	27	29	29	.19
Risk and harm related to being bullied and bullying others								
QC115: At any time during the last 12 months had this (being bullied) happened on the internet?	All, 9-16	1	3	5	11	9	10	.18
QC127c: In which of the following ways have you acted like this (bullied others) in the past 12 months? On the internet	All, 9-16	1	2	2	6	5	5	.16
Risk and harm related to sexual messages								
QC167: In the past 12 months have you seen or received sexual messages of any kind on the internet?	All, 11-16	2	3	8	22	20	18	.56
QC171: And in the LAST 12 MONTHS has any sexual message that you have seen or received bothered you in any way?	All, 11-16	1	2	2	4	5	5	.27

Indicators for risk and harm	Base	Online user types (see section 2.7)						Phi
		Low use / learning oriented	Low use / SNS oriented	Moderate use	Diverse and risky opportunities	High use / entertainment oriented	Focused social web use	
QC171: And in the LAST 12 MONTHS has any sexual message that you have seen or received bothered you in any way?	Those who have seen sexual messages, 11-16	31	33	25	21	24	25	.15
QC179: In the past 12 months, have you sent or posted a sexual message (words, pictures or video) of any kind on the internet?	All, 11-16	0	1	2	6	5	3	.48
Risk and harm related to meeting new people								
QC147: Can I just check, have you ever had contact on the internet with someone you have not met face to face before?	All, 9-16	7	13	23	50	47	47	.58
QC148: And have you ever gone on to meet anyone face to face that you first met on the internet in this way?	All, 9-16	1	3	4	16	16	17	.41
QC148: And have you ever gone on to meet anyone face to face that you first met on the internet in this way?	Those who met people online, 9-16	10	20	19	33	34	37	.20
QC152: In the LAST 12 MONTHS have you gone to a meeting with someone you met in this way that bothered you?	All, 9-16	0	0	1	2	2	1	.27
QC152: In the LAST 12 MONTHS have you gone to a meeting with someone you met in this way that bothered you?	Those who met people offline, 9-16	27	13	12	13	11	8	.14
Experiences with other risks								
DC142x2: Has come across one or more negative user generated content	All, 11-16	10	13	19	31	30	31	.21
DC143x2: Has experienced personal data misuse of any kind	All, 11-16	4	8	8	16	13	12	.13

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.⁷⁸

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 2010-12.

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.

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.

International Advisory Panel

- María José Cantarino, Corporate Responsibility Manager, Telefónica
- David Finkelhor and Janis Wolak, Crimes against Children Research Center, University of New Hampshire, USA
- Will Gardner, Chief Executive Officer of Childnet International
- Dr Ellen Helsper, Department of Media and Communications, LSE, London
- Amanda Lenhart, Pew Internet & American Life Project
- Eileen Munro, Department of Social Policy, LSE, London
- Annie Mullins, Global Head of Content Standards, Vodafone
- 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
- Agnieszka Wrzesień, Project Coordinator, Polish Safer Internet Node, Nobody's Children Foundation

⁷⁸ Finnish participation was funded by the Finnish Ministries of Education and Culture and of Transport and Communications.

ANNEX 2: THE NETWORK

Country	National contact information	Team members
Austria (AT)	Ingrid Paus-Hasebrink ingrid.paus-hasebrink@sbg.ac.at Department of Audiovisual Communication, University of Salzburg, Rudolfskai 42, A-5020 Salzburg, Austria	Ingrid Paus-Hasebrink Andrea Dürager
Belgium (BE)	Leen D'Haenens Leen.DHaenens@soc.kuleuven.be Centrum voor Mediacauteuur en Communicatietechnologie (OE), OE Centr Mediacult & Comm technologie, Parkstraat 45 – bus 3603, 3000 Leuven, Belgium	Leen d'Haenens Verónica Donoso Sofie Vandoninck Joke Bauwens Katia Segers
Bulgaria (BG)	Jivka Marinova gert@mbox.contact.bg Gender Education, Research and Technologies foundation, PO Box 963, Sofia 1000, Bulgaria	Jivka Marinova Diana Boteva
Cyprus (CY)	Yiannis Laouris laouris@cnti.org.cy Cyprus Neuroscience & Technology Institute, Science Unit of the Future Worlds Center, 5 Promitheos, 1065 Lefkosia, Cyprus	Yiannis Laouris Tatjana Taraszow Elena Aristodemou Melis Eroglu Georgina Siitta-Achilleos
Czech Republic (CZ)	David Šmahel smahel@fss.muni.cz Faculty of Social Studies, Masaryk University, Joštova 10, 602 00 Brno, Czech Republic	David Šmahel Štěpán Konečný Lukáš Blinka Hana Macháčková Anna Ševčíková Petra Vondráčková Alena Černá
Denmark (DK)	Gitte Stald stald@itu.dk IT University of Copenhagen, Ruud Langgaards Vej 7, 2300 Copenhagen, Denmark	Gitte Stald
Estonia (EE)	Veronika Kalmus Veronika.Kalmus@ut.ee Institute of Journalism and Communication, University of Tartu, 18 Ülikooli St, 50090 Tartu, Estonia	Veronika Kalmus Pille Pruulmann-Vengerfeldt Pille Runnel Andra Siibak Kadri Ugur Lennart Komp Kersti Karu
Finland (FI)	Reijo Kupiainen reijo.kupiainen@uta.fi Department of Journalism and Mass Communication, University of Tampere, 33014 Finland	Reijo Kupiainen Kaarina Nikunen Annikka Suoninen Riitta Kauppinen
France (FR)	Dominique Pasquier Dominique.Pasquier@ehess.fr Ecole Nationale Supérieure des Télécommunications, 46 rue Barrault, 75013 Paris, France	Dominique Pasquier Sylvie Octobre Elodie Kredens Pauline Reboul
Germany (DE) (Management Group)	Uwe Hasebrink u.hasebrink@hans-bredow- institut.de Hans Bredow Institute for Media Research, Warburgstr 8-10, D-20354 Hamburg, Germany	Uwe Hasebrink Claudia Lampert
Greece (EL)	Liza Tsaliki etsaliki@media.uoa.gr Department of Mass Media and Communications, National and Kapodistrian University of Athens, 5 Stadiou Street, Athens 105 62, Greece	Liza Tsaliki Despina Chronaki Eleni-Revekka Staiou Kalpaki Kornilia Konstantina Michalopoulou
Hungary (HU)	Bence Ságvári bence.sagvari@ithaka.hu	Anna Galács

	Information Society and Network Research Center – ITHAKA, Perc u 8, Budapest, 1036 Hungary	Bence Ságvári	
Ireland (IE) (Management Group)	Brian O'Neill brian.oneill@dit.ie College of Arts and Tourism, Dublin Institute of Technology, Rathmines Road, Dublin 6, Ireland	Brian O'Neill Nóirín Hayes Simon Grehan	Sharon McLaughlin
Italy (IT)	Giovanna Mascheroni giovanna.mascheroni@unicatt.it OssCom, Università Cattolica del S Cuore, Largo Gemelli, 1, 20123 Milano, Italy	Fausto Colombo Piermarco Aroldi Barbara Scifo	Giovanna Mascheroni Maria Francesca Murrù
Lithuania (LT)	Alfredas Laurinavičius allaur@mrui.eu Department of Psychology, Mykolas Romeris University, Ateities st 20, LT-08303 Vilnius, Lithuania	Alfredas Laurinavičius Laura Ustinavičūtė Rita Žukauskiene	
The Netherlands (NL)	Jos de Haan j.de.haan@scp.nl Netherlands Institute for Social Research/SCP, PO Box 16164, 2500 BD Den Haag, The Netherlands	Jos de Haan Patti M. Valkenburg Marion Duimel Els Kuiper	Linda Adrichem Jochen Peter Maria Koutamanis Nathalie Sonck
Norway (NO)	Elisabeth Staksrud elisabeth.staksrud@media.uio.no Department of Media and Communication, University of Oslo, Boks 1093 Blindern, 0317 Oslo, Norway	Elisabeth Staksrud Ingunn Hagen Jørgen Kirksæther	
Poland (PL)	Lucyna Kirwil lucyna.kirwil@swps.edu.pl Department of Psychology, Warsaw School of Social Sciences and Humanities, ul Chodakowska 19/31, 03-815 Warsaw, Poland	Lucyna Kirwil Aldona Zdrodowska	
Portugal (PT) (Management Group)	Cristina Ponte cristina.ponte@fcsh.unl.pt Departamento de Ciências da Comunicação, Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa (UNL), Av de Berna, 26-C, 1069-061 Lisboa, Portugal	Cristina Ponte José Alberto Simões Daniel Cardoso Ana Jorge	
Romania (RO)	Monica Barbovschi moni.barbovski@gmail.com Babes-Bolyai University, Faculty of Sociology and Social Work, 21 Decembrie 1989 st no128-130, Cluj-Napoca, Romania	Monica Barbovschi Maria Diaconescu Eva Laszlo	George Roman Valentina Marinescu Anca Velicu
Slovenia (SL) (Management Group)	Bojana Lobe bojana.lobe@fdv.uni-lj.si Centre for Methodology and Informatics, Faculty of Social Sciences, University of Ljubljana, Kardeljeva pl 5, Ljubljana, Slovenia	Bojana Lobe Sandra Muha	
Spain (ES)	Maialen Garmendia maialen.garmendia@ehu.es Depto de Sociología, Universidad del País Vasco, Apartado 644, 48.080 Bilbao, Spain	Carmelo Garitaonandia Maialen Garmendia Miguel Angel Casado	Gemma Martínez Fernández
Sweden (SE)	Cecilia von Feilitzen cecilia.von.feilitzen@sh.se The International Clearinghouse on Children, Youth and Media, Nordicom, Goteborg University, Box 713, 405 30 Goteborg, Sweden	Cecilia von Feilitzen Elza Dunkels Olle Findahl	
Turkey (TR)	Kursat Cagiltay kursat@metu.edu.tr Department of Computer Education and Instructional Technology, Faculty of Education, Middle East Technical University, 06531, Ankara, Turkey	Kursat Cagiltay Engin Kursun Duygu Nazire Kasikci	Christine Ogan Turkan Karakus
United Kingdom (UK) (Coordinator, Management Group)	Leslie Haddon leshaddon@aol.com Department of Media and Communications, London School of Economics and Political Science, Houghton Street, London WC2A 2AE, UK	Sonia Livingstone Leslie Haddon Anke Görzig Daniel Kardefelt-Winther	



ANNEX 3: COMMONLY USED MEASURES

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
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	In the PAST 12 MONTHS, have any of these happened to you on the internet? I have... been sent a sexual message on the internet, seen a sexual message posted where other people could see it on the internet, been asked to talk about sexual acts with someone on the internet, been asked on the internet for a photo or video showing my private parts, seen other people perform sexual acts
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	The number out of five response options	Which, if any, of these things have you seen on a website in the last 12 months?: Images or video of someone naked, Images or video of someone's 'private parts', Images or video of someone having sex, Images or video of movies that show sex in a violent way, Something else
BULLYING (introduction)	Sometimes children or teenagers say or do hurtful or nasty things to	

Label	Item or calculation	Response scale
	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 When people are hurtful or nasty to someone in this way, it can happen: - 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	The number out of five response options	And can I just check, which of these things have happened in the last 12 months?: Nasty or hurtful messages were sent to me, Nasty or hurtful messages about me were passed around or posted where others could see, I was left out or excluded from a group or activity on the internet, I was threatened on the internet, Other nasty or hurtful things 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
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

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

Label	Item or calculation	Response scale
Overall experience of harm on the internet	In the past 12 months, have you seen or experienced something on the internet that has bothered you in some way? For example, made you feel uncomfortable, upset, or feel that you shouldn't have seen it.	yes/no
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 (sexual images, sexual messages, being bullied online)	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>).
Duration of harm (meeting online contacts offline)	How long did you feel like this [upset] for?	1 (<i>I got over it straight away</i>) to 3 (<i>I felt like that for a few weeks</i>).
Harm index (sexual images, sexual messages, being bullied online)	Intensity x duration	0 (low) – 12 (high)
Harm index (meeting online contacts offline)	Intensity x duration	0 (low) – 9 (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 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>	
	In general, talked to you about what to do if something on the internet bothered you	yes/no
	<i>parents CURRENTLY allow them to do them all of the time, only with permission/supervision, or never allow.</i>	
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>	

Label (original source)	Item or calculation	Response scale
	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 Analysis, 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 Analysis 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*)

References

- Currie, C., Gabhainn, S. N., Godeau, E., Roberts, C., Smith, R., Currie, D., Picket, W., Richter, M., Morgan, A., & Barnekow, V. (Eds.). (2008). *Inequalities in young people's health: Health behaviour in school-aged children (HBSC) international report from the 2005/2006 survey*. Copenhagen, Denmark: WHO Regional Office for Europe.
- Goodman R., Meltzer H., Bailey V. (1998) The Strengths and Difficulties Questionnaire: A pilot study on the validity of the self-report version. *European Child and Adolescent Psychiatry*, 7, 125-130. doi:10.1007/s007870050057
- Livingstone, S., and Helsper, E. J. (2007) Taking risks when communicating on the internet: The role of offline social-psychological factors in young people's vulnerability to online risks. *Information, Communication and Society*, 10(5), 619-643.
- Schwarzer, R. (2006). *SPSS RAW DATA WITH 18,000 Participants*. Retrieved from http://userpage.fu-berlin.de/~health/world_24nations_25nov2006.sav
- Schwarzer, R. & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON.
- Stephenson, M. T., Hoyle, R. H., Palmgreen, P., & Slater, M. D. (2003). Brief measures of sensation seeking for screening and large-scale surveys. *Drug and Alcohol Dependence*, 72(3), 279-286. doi:10.1016/j.drugalcdep.2003.08.003



Co-funded by the European Union



THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE ■

Contact details

Professor Sonia Livingstone and Dr Leslie Haddon
Department of Media and Communications
The London School of Economics and Political Science
Houghton Street, London WC2A 2AE, UK
t +44 (0) 20 7955 7248
s.livingstone@lse.ac.uk / leshaddon@aol.com

The EU Kids Online network has received funding from the European Community's Safer Internet Programme. The authors are solely responsible for the contents of this report. It does not represent the opinion of the Community and nor is the Community responsible for any use that might be made of information contained in it.

www.eukidsonline.net