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THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

EU **Kids Online**

Policy and Research Recommendations





European Research on Cultural, Contextual and Risk Issues in Children's Safe Use of the Internet and New Media (2006-2009)

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www.eukidsonline.net

EU Kids Online:
Policy and Research Recommendations

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European Research on Cultural, Contextual and Risk Issues in Children's Safe Use of the Internet and New Media

EU Kids Online is a network funded by the EC Safer Internet plus Programme (http://ec.europa.eu/information_society/activities/sip/index_en.htm) from 2006-2009. It examines research carried out in 21 member states into how children and young people use the internet and new media. This three-year collaboration aims to identify comparable research findings across Europe and to evaluate the social, cultural and regulatory influences affecting both risks and children's and parents' responses to them, in order to inform policy. It will chart available data, note indicate gaps and identify factors that shape the research capability of European research institutions. Finally, it will examine methodological issues relating to cross-cultural analyses and the study of children's online experience in order to develop a best practice guide to research. See www.eukidsonline.net

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1. Introduction

1.1. European children go online

Across Europe and beyond, children and young people are going online in ever greater numbers and for ever more activities. In 2005-6 some 70% of 6-17 year olds in EU25 used the internet (as estimated by their parents; Eurobarometer, 2006). By 2008, this figure rose to 75% (for EU27; Eurobarometer, 2008). There are, however, substantial variations in children's use of the internet, for example, across countries and by age.

To understand what these changes mean for children and their families, for their education, leisure, participation and communication and, more negatively, for the risk of harm to children and young people, this growing use of the internet and online technologies is being closely tracked by empirical research. There is a growing body of empirical studies of varying range and depth, conducted in order to advise policy-makers how best to maximise the benefits and minimise the risks associated with the changing media environment.

It is widely agreed that the activities of multiple and diverse stakeholders are required to promote safer use of the internet and online technologies, to protect children and young people and to empower parents and teachers with online safety tools. It is also agreed that this approach should be evidence-based.

Research is needed to chart which children have access to which (fast-changing array of) technologies, to understand the incidence of risky practices and of parental regulation. It can also contextualise use and risk-related findings, so that we understand how and why some children encounter certain risks and with what consequences. Last, research can target awareness-raising and other interventions towards particular age, demographic or national groups.

In a European context, research must be cross-national if it is to support understanding of how and why children have different experiences online in different countries. Comparative research can also support multiple stakeholders in working together to ensure that parents and children receive up to date, comprehensible information, tailored to the modern family (in all its diversity), appropriate to social mores (in all their cultural variation), and accessible to all (despite economic and education-based stratification). Similar initiatives may not be equally effective in different countries, for a range of contextual reasons, necessitating the adaptation of research and policy to local circumstances.

1.2. The EU Kids Online network

To inform this agenda, research teams across Europe, from diverse institutions, disciplines and perspectives are conducting many kinds of research. But keeping track of this research is a demanding task. Those who are not active researchers may lack the expertise required to identify, interpret and evaluate available research. Those working in one country or language may struggle to use research conducted elsewhere. Those with the power to commission research in one country would benefit from knowing what has proved useful in another.

For these reasons, a bridge is required between the specialist domain of empirical research and the policy imperatives of safer internet initiatives. EU Kids Online is a thematic network designed to inform this policy context by examining European research (national and multi-national) on cultural, contextual and risk issues in children's safe use of the internet and online technologies.

EU Kids Online addresses three intersecting domains:

- Children (mainly up to 18 years old), their families, domestic users[1];
- Online technologies: mainly but not only the internet; focussing on use and risk;
- European empirical research and policy, prioritising the 21 countries in the network.

For further information, see www.eukidsonline.net.

1.3. This report

This report builds on our prior analyses of available evidence (Staksrud, Livingstone, Haddon & Ólafsson, 2009) comparative findings (Hasebrink, Livingstone, Haddon and Ólafsson, 2009), best practice research guidelines (Lobe, Livingstone, Olafsson and Simões, 2008) and final conclusions (Livingstone and Haddon, 2009). It reports specifically on the activities and conclusions of Work Package 5, drawing out the main policy and research recommendations as developed by the contributors in consultation with network and national/international stakeholders.

While we focus on the policy conclusions that may be fairly supported, partially or soundly, by the growing evidence base, there are still significant gaps. Based on a description of gaps, the last section of this report presents recommendations for future research.

2. Recommendations for policy

2.1. Mapping the policy context

New technologies provide opportunities for children and young people to communicate personal textual and visual information in publicly accessible and searchable online spaces. However, these new uses not only promote sociability, self confidence and identity formation, they may also increase the potential for children and young people to be exposed to a variety of risks which may result in harm to their physical and psychological well-being.

In the EU several measures have been deployed to promote safer use of the internet by children and young people. The EU has been recognised as an early mover in the area of mitigating online risk (ACMA 2008). Member states have adopted an array of measures to promote online safety. These measures have often been inspired or driven by the Safer Internet Action Plan (1999-2004) and the Safer Internet plus Programme (2005-2008), now followed by the Safer Internet Programme (2009 - 2013).[2]

These successive Safer Internet Programmes resulted in two key initiatives: the *Inhope* network of hotlines[3] and the *Insafe*[4] suite of national safety nodes.

- The Inhope network of hotlines investigates complaints from the public about potentially illegal internet content, and fosters cooperation between members and key stakeholders, including law enforcement agencies, government and policy-makers.

- The Insafe programme coordinates education and awareness activities through key organisations at the national level known as internet safety nodes. The education initiatives deployed in the EU target a range of online risks and diverse audiences, including parents, educators and young children. The hotlines and safety nodes are possibly the most visible results of EU policy.

These EU initiatives are evaluated on a regular basis and supported by research into online risks. In 2003, such initiatives were informed by the SAFT (Safety Awareness Facts and Tools) project's evidence regarding the use, benefits, risks and safety practices among children and parents in five Northern European countries. The knowledge base of the Safer Internet programmes was further increased by Eurobarometer surveys of the extent of online risk among children in all member states, as reported by their parents/carers though not by children themselves (EC 2006, 2007).

The EU Kids Online network was funded in 2006 to assess the availability of empirical evidence on children's online risk and safety in 18 (now 21) European countries. Other comparative research followed, such as that of Deloitte (2008) into the effectiveness of domestic filtering products and parental control techniques, and a new survey by Eurobarometer (EC 2008) into the relationship of children's internet use and that of their parents.

At the 2007 Safer Internet Forum, participants stressed 'the need to establish reliable facts and figures' to inform future work on online safety. They particularly valued information collected on a cross-national comparable basis as this is valuable both for assessing ICT use in EU countries and the amount of risks children and young people face, but for understanding the influence of a changing environment in member states.

Based on previous work packages of the EU Kids Online project, which included a data repository, a shared conceptual framework and a country by country analysis of national results as well as comparative analyses of Eurobarometer data, the network formulated a series of evidence-based policy recommendations, as explained in what follows.

Given the continually expanding knowledge base, EU Kids Online identified and coded nearly 400 distinct empirical studies in 21 countries concerned with children's online experiences (Staksrud et al. 2009). Second, the network classified these findings in terms of varieties of online opportunities and risks, developing a three C's approach: content, contact and conduct (see Hasebrink et al, 2009). This classification derives from the three modes of communication afforded by the internet:

- Content: one-to-many (child as recipient of mass distributed content);

- Contact: adult-to child (child as participant in an interactive situation predominantly driven by adults);

- Conduct: peer-to-peer (child as actor in an interaction in which s/he may be initiator or perpetrator).

Children may encounter four main forms of risks to their development and well-being (commercial, aggressive, sexual and value threats) by each of these modes of communication. They also have access to four main categories of online opportunities (education and learning, participation and civic engagement, creativity, identity and social connection) as outlined in the table below.

		Content: Child as recipient	Contact: Child as participant	Conduct: child as actor
OPPORTUNITIES	**Education learning and digital literacy**	Educational resources	Contact with others who share one's interests	Self-initiated or collaborative learning
	Participation and civic engagement	Global information	Exchange among interest groups	Concrete forms of civic engagement
	Creativity and self-expression	Diversity of resources	Being invited/ inspired to create or participate	User-generated content creation
	Identity and social connection	Advice (personal/ health/sexual etc)	Social networking, shared experiences with others	Expression of identity
RISKS	**Commercial**	Advertising, spam, sponsorship	Tracking/ harvesting personal info	Gambling, illegal downloads, hacking
	Aggressive	Violent/ gruesome/ hateful content	Being bullied, harassed or stalked	Bullying or harassing another
	Sexual	Pornographic/harmful sexual content	Meeting strangers, being groomed	Creating/ uploading pornographic material
	Values	Racist, biased info/ advice (e.g. drugs)	Self-harm, unwelcome persuasion	Providing advice e.g. suicide/ pro-anorexia

Table of Risks and Opportunities. From Livingstone, S., & Haddon, L. (2009) *EU Kids Online: Final report*. LSE, London: EU Kids Online. (EC Safer Internet Plus Programme Deliverable D6.5)

Since EU Kids Online is part of the Safer Internet plus Programme, the emphasis in this report is on online risks. It should be noted that research shows that children in different countries do not face the same level of risks. Partly this is a consequence of differences in the amount of use, with relatively high use countries tending also to be relatively 'higher risk' countries while low use countries tend to be also 'lower risk' countries (Livingstone and Haddon, 2009).

The most common risks, in terms of the three C's, are as follows.

With regard to **content,** it appears that *seeing pornography* and *seeing violent or hateful content* are among the most common risks, although not encountered by a majority of the children and teenagers and with some gender differences in these experiences. Boys appear more likely to seek out offensive or violent content, to access pornographic content or be sent links to pornographic websites. Girls appear more likely to be upset by this. Not every use of pornographic or violent content constitutes a (emotional) problem and there can be disagreement about these risks between parents and children. Generally, there is more policy attention paid to pornographic than to violent content, and arguably efforts to reduce children's exposure to violent online content could be strengthened.

Prominent **contact**-related risks are *receiving unwanted sexual comments* and *meeting an online contact offline*. The latter is the least common but arguably most dangerous risk. Although we have little empirical research on *commercial risks,* this may be added to the list, since research shows that young children find it difficult to separate commercial and non-commercial content, and since this is difficult for many of all ages in the digital environment.[5]

Conduct risks are often associated with self exposure. *Giving out personal information* (such including textual information or images on blogs or social networking profiles) is very common, and may be detrimental to the reputation of young people or it can expose them as possible victims for adults or adolescents with a sexual interest in children. Sending and receiving hostile messages within the peer group occurs fairly frequently, though less common is the use of various information and communication technologies to support deliberate, repeated, and hostile behaviour by an individual or group that is intended to harm others (i.e. *cyber-bullying*). The common forms of potentially offensive internet activities are personal intimidation, exclusion, humiliation, ridicule, and so forth.

Problematically for any simple policy solutions, research suggests that, at both cross-national and individual levels, the more teenagers take up online benefits, the more risks they encounter. As far as

possible children need to be protected against these online risks. However safety initiatives to reduce risk tend also reduce opportunities. It is therefore important to balance children's protection against children's rights (to opportunities).

2.2. Policy windows

Policy recommendations must be targeted to current policy deliberations and existing or emerging policy frameworks. It is preferable that recommendations should focus on matters not yet set in stone, so as to influence unfolding deliberations and guide the next steps of ongoing activities.

Including and going beyond the Safer Internet Programme, there are many policy initiatives directed at increasing internet safety and promoting valuable use. Children's internet use is also affected by other policy measures, and thus EU Kids Online began by identifying the key policy domains that shape the economic, regulatory, social and technological context within which children engage with the internet:

- e-inclusion
- media literacy
- awareness raising
- education and the role of schools
- child welfare and protection
- privacy
- content and age classification

These were scoped in consultation with diverse stakeholders, national advisory boards and the Safer Internet Programme. Since evidence-based policy recommendations must be timely and relevant, in each domain we then sought to identify the current 'policy window'[6] at national and European levels. After reviewing the available findings in comparative perspective, and noting methodological limitations and research gaps, we identified evidence-based policy recommendations designed to maximise children's online opportunities and to minimize their online risks.

Below we briefly review these current developments (or 'policy windows') in each of the relevant policy domains that, in combination, closely shape children's online opportunities and risks.

E-inclusion

The European Union has been hugely influential in promoting the concept of e-inclusion - an *information society for all* - in response to persistent digital divides across Europe. The emphasis is on targeting groups at risk of social exclusion, to encourage equal participation in the information society. As well as the social challenges, e-inclusion is seen as a major economic opportunity. The landmark was the 2006 Ministerial *Riga Declaration*[7] on *ICT for an inclusive society* signed on 11 June 2006 by 34 European countries which promoted a broad definition of e-inclusion (p 2):

> *"e-Inclusion means both inclusive ICT and the use of ICT to achieve wider inclusion objectives. It focuses on participation of all individuals and communities in all aspects of the information society. e-Inclusion policy, therefore, aims at reducing gaps in ICT usage and promoting the use of ICT to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion"*

The Riga Declaration set concrete targets for European states to be achieved by 2010 in four priority areas. The Riga Dashboard[8] is measuring progress against targets in the areas of internet usage, broadband coverage, digital literacy and website accessibility. However, children are not mentioned specifically in any e-inclusion policies or targets, mainly because it is presumed that schools' ICT programmes are addressing this issue. On the other hand it is likely that policy interventions addressing the digital divide by supporting the diffusion of internet access in European households will also increase, and, crucially, equalise children's internet use.

As our cross-national, comparative research shows, children in varying degree in different European countries are still 'falling through the net' (cf NTIA 1999). Internet use as well as risks and opportunities of this use experienced by young people are still influenced by age, social class, gender and ethnicity. An information society cannot function properly without all children being e-included, and it is to this end that media literacy, awareness raising and child protection are all ultimately targeted.

Media literacy

Access is not sufficient for effective and safe use of the internet. Children and adults alike need "the ability to access, analyse, evaluate and create messages across a variety of contexts" (Aufderheide 1993; see Potter 2004). In general, these skills are referred to as media literacy (or digital literacy). The EC has formed

an Expert Group on Media Literacy[9] and defines media literacy as:

> *"the ability to access, analyse and evaluate the power of images, sounds and messages which we are now being confronted with on a daily basis and are an important part of our contemporary culture, as well as to communicate competently in media available on a personal basis. Media literacy relates to all media, including television and film, radio and recorded music, print media, the Internet and other new digital communication technologies."* [10]

Some elements of media literacy are proving more amenable to policy implementation than others. Media literacy initiatives tend to focus more on access and use, downplaying the critical and creative literacies so vital for full participation in a fast changing media and information environment (Livingstone, 2004). However, many national and international organisations seek to promote, implement and increase media literacy. The EC recently mapped trends and approaches to media literacy in Europe, and is currently funding a project to produce media literacy indicators.

Problematically, research shows that media literacy lags behind technological change. Children and adults vary considerably in their ability to access the range of media contents and services. Many have a weak understanding of how contents are produced, disseminated, financed or regulated. This undermines decisions of trustworthiness or authenticity. Further, systems of selection, control and protection are little understood or used (see Livingstone et al 2005; Buckingham et al. 2005).

There remains in most countries a considerable gap between the ambitions of those promoting media literacy and the delivery of an effective media literacy curriculum. Specifically, those already 'ahead' tend to sustain their relative advantage over others, low media literacy is associated with other forms of social deprivation, and media literacy initiatives more effectively reaches the information rich than the information poor.

Awareness-raising

Awareness, described by the EC as *"actions that can contribute to the trust and confidence of parents and teachers in safer use of the Internet by children"*[11] has since the start of the Safer Internet Action Plan been a central action line for the European Commission, along with the creation of a safer environment through the establishment of hotlines, self-regulatory schemes, codes of conduct, and the development of filtering and rating systems.

In 1999, the European Parliament and the Council adopted a Multiannual Community Action Plan on promoting a safer internet by combating illegal and harmful content on global networks[12]. This action plan has since been extended (2003-2004) and renewed (*Safer Internet Plus* 2005-2008) to include a stronger focus on the promotion of safer use of the internet and new online technologies, in addition the former combating of illegal and harmful content.

Since 2005 the programme's action lines have been defined as 1) Fighting against illegal content, 2) Tackling unwanted and harmful content, 3) Promoting a safer environment, and 4) Awareness-raising. The coverage of the programme has also been extended to include mobile and broadband content, online games, peer-to-peer file transfer, and all forms of online real-time communications.[13] The European Commission has proposed an additional extension of the Safer Internet Programme for the period 2009-2013 which was adopted by the European Parliament and the Council of the European Union in 2008.[14] Awareness work is mainly conducted by the funding of projects, organized as national "nodes", and the coordination by the Insafe network of these national awareness nodes.[15]

Education and the role of schools

New technological tools (including the internet and other ICTs) have been adopted in schools and universities. Government investment in ICTs (including infrastructure) has grown considerably in all European countries over the last few years (see Eurydice, 2005). In some cases specific organisations were created to implement the use of the internet and other technologies in schools. In addition, several attempts have been made to promote computer literacy among children. The importance of ICTs has been noticed not only as tools for learning but also as an area of concern regarding younger generations.

Technological changes have coincided with changes in curricula and educational methods (more subjects, both diversified and updated) and other innovations such as new pedagogies, and new learning tools and methods. Moreover, schooling has become longer in the past decades and higher education has become available for larger parts of the population (see OECD, 2007). Some of these quantitative and qualitative changes are connected to educational policies and government efforts to promote general literacy. These changes led to a sense that the educational system seemed to become more open and dynamic, which occurred at different paces in different countries. On the other hand, the level of expectations seems to be

higher now than before. This is explained in part by an increased investment in education at all levels, but also by the increased importance assigned to the role of education.

In the new millennium, specific programmes and initiatives have been adopted to promote digital literacy, ICT use and internet safety in schools.[16] These programmes fit within a broader EU policy regarding education, which was shaped in 2000[17], establishing a ten year programme (approved in 2002[18]). This reflects a general concern with the cultural and economical role played by education and training in each country's development and, more generally, Europe's competitiveness in a globalised world. Lifelong learning is central to EU policies[19], reflecting a concern with the quality of education and training systems as well as its generalisation.

Child welfare and protection

Within and outside schools, children's welfare needs protection in digital environments. The absence of requisite levels of media literacies or the absence of appropriate parental engagement may leave children more vulnerable to grooming, cyberbullying, content risks and other risks online (as offline).

Within the framework of the protection of children, the European Commission adopted a Communication on 4 July 2006 entitled "*Towards an EU Strategy on the Rights of the Child*". It aims at establishing a comprehensive EU strategy to promote and safeguard the rights of the child in the European Union's policies and to support Member States' efforts in this field. With the main goal of underpinning the existing legal structure, it follows on from other measures taken in the area of violence against children, such as combating human trafficking and sexual exploitation of children, child sex tourism, child pornography, and civil society's contribution to finding missing or sexually exploited children.

Measures listed in the communication that have already been taken in this area include the "116000" hotline phone number for missing children and reflections on how to implement an alert system for missing children throughout Europe.[20] The EU has focused its action on the following types of violation of children's integrity: *missing children, child trafficking, sexual exploitation and child pornography*, for which it has certain powers to act.

Privacy

It is necessary that the privacy of internet users is respected and protected. Personal information may be held in the databases of government administration (e.g. social security, tax agency, schools), telecommunications and other companies, while trends in web 2.0 place ever more personal information online.

The EU has built a regulatory framework for electronic communications based on five directives, which form part of the Telecoms Package: the 'general framework' directive, the 'authorisation and licensing' directive, the 'access and interconnections' directive, the 'universal service' directive, and the 'directive on privacy and electronic communications'.[21]

The scope and aim of these directives about privacy and electronics communications was to harmonise the provisions of the Member States to ensure an equivalent level of protection of fundamental rights and freedoms, and in particular the right to privacy, with respect to the processing of personal data in the electronic communication sector and to ensure the free movement of such data and of electronic communication equipment and services in the EC.

Content and age classification

In spring 2008, as part of the preparations for the *Safer Internet Forum,* the European Commission's *Safer Internet Action Plan* held a public consultation on age verification and cross media rating and classification. The question of a pan-European, cross platform rating system was also raised here,[22] with the purpose of exploring the possibility for a content rating system independent of the medium and delivery system. Historically, the idea of a common European content and age classification system has been rejected by the respective national bodies, with reference to the cultural and religious differences between the member states. The notion has been supported by the regional differences in age classification that can be observed, for example, with cinema movie releases.

For the past two decades many countries have seen a shift from regulation by traditional censorship bodies and direct censoring, towards more parental advice and information (e.g. the Media Council in Denmark and the Norwegian Media Authority), or industry self-regulation mechanisms (e.g. NICAM in the Netherlands). This shift is paralleled in the much talked about convergence and overlapping of different media and media technologies, and their borderless properties, revitalising the idea of a common media content classification system in Europe.

Classification schemes depend on the type of platform. All member states age-rate films for cinema release. Since 2003, the Pan-European Games Information (PEGI)[23] has provided age ratings and content descriptors for computer games. On the other hand, online and mobile content are not subject to specific national classification schemes.

2.3. Focusing policy recommendations

EU Kids Online's report on the comparisons of online risks has pointed to the existence of considerable risks in all European countries, although these risks occur with varying extent and severity across countries (Hasebrink et al. 2009). In what follows, we draw out the policy implications of these findings, some focused on safeguarding children and young people from negative experiences (e.g. by strengthening coping strategies or improving media literacy), and some focused on supporting positive experiences (although here we are hindered by the paucity of cross-nationally comparable evidence regarding the incidence and take-up of these various opportunities). These are organised as follows:

- Legislation and children's digital rights
- Content provision
- Filters
- Awareness-raising
- Parental mediation
- Media literacy
- Education
- Stimulating coping behaviour of children
- Self-regulatory codes and practices

Legislation and children's digital rights

The regulatory framework is a key building block of a national/international strategy for addressing downsides of the internet. While the framework has elements that are the responsibility of particular parties such as service providers, the overall maintenance and development of the framework is carried out by national governments. The World Economic Forum (2007) indicates that about half of all countries judge that they have adequate regulation on internet issues in general. Most of these countries are in the Western world, although exceptions prevail in Europe, for instance countries like Cyprus, Poland and Greece still need more regulatory mechanisms.

The availability of a regulatory framework seems to be related to the level of general internet diffusion in countries. In general, countries with more internet users often also have more legislation regulating activities on the internet. Also differences in access and use across European countries are still large, and subject to e-inclusion strategy. As a consequence, for children in countries with high internet diffusion, online services are a normal part of their media environment and everyday life, and the availability of a regulatory framework is more likely.

On the other hand, children in countries with low internet diffusion lack opportunities in using the internet and their safety online is less likely to be guided by a regulatory framework. Internet regulation can be supported by e-inclusion strategies that improve access for all. This policy is largely focused on schools, and here considerable progress has been made (see below, on education). But, many children lack sufficient, flexible access to ICTs at school to explore the potential of the internet. This policy should be extended to the home situation, where special attention needs to be paid to the excluded.

Recognising the stratification in access to the internet is necessary and especially low social-economic (ethnic) groups face the risk of digital exclusion. Research suggests that e-inclusion policies should now target certain countries where children's internet use is relatively low, (notably in Italy, Greece, Cyprus) and certain population segments, (less well-off households, parents who are not online) if the remaining 25% of EU children are to get online.

Regulatory frameworks need to be based on the formulation of digital rights for children. In general, digital rights refer to the freedom of individuals to perform actions involving the use of a computer, any electronic device, or a communications network. In order to strengthen the position of children in an information age, one may advocate a *digital rights charter for children,* based on the UN convention of children's rights. Digital rights that encourage creativity and sociability need to be supported. Also, as teenagers value their privacy online and seek to protect it (especially from parents), the *right to privacy* needs to be included in this digital rights charter.

Content provision

Children's digital rights can be supported by providing content that stimulates their intellectual and creative development and promotes civic information and learning opportunities. Although there is little cross-nationally comparable evidence regarding the incidence and take-up of these opportunities, we would, in line with the new EC Safer Internet Programme, like to stress the need for positive content provision. In countries such as Denmark, the Netherlands and the UK, the media content for children does seem to be rich and broad, whereas other counties lag behind. Research suggests that each child climbs a '*ladder of online opportunities'*, beginning with information-seeking (of any kind),

progressing through games and communication, taking on more interactive forms of communication and culminating in creative and civic activities (Livingstone and Helsper 2007).

In most countries, the Public Service Broadcaster seems to be the major media content provider for children followed by some commercial broadcasters (Hasebrink et al. 2008). Increasingly cultural heritage institutions like museums, archives and libraries digitise their collections and make them available the public at large and to children in particular (De Haan et al. 2006). These digitisation efforts are supported by many different EU initiatives, but mainly depend on the funding capacity of member countries. More and more children use these materials for educational purposes (Duimel and De Haan 2009). It remains unclear, however, whether the provision of good online content for children reduces their exposure to risk (although see Bauwens et al, forthcoming, for a promising indication of benefit).

Nevertheless, public discussion is now needed on how positive content can be provided and put to use in the advantage of children (Livingstone, 2008). Governments as well as industry should *support non-profit organisations* which encourage public debate, including children's voices, regarding the quality of online content and services.

Filters

Filtering has been deployed in the EU by Internet Service Providers (ISP) and mobile networks, and on home computers. Internet hotlines can block access to (illegal) child abuse images. For legal but potentially harmful material, user-operated filtering systems are preferred though they are not (yet) technically designed to filter chat traffic and content that uses non-web protocols.

In a number of European countries (Belgium, Denmark, Estonia, Germany, Greece, Ireland, Italy, the Netherlands, Slovenia and the UK), ISPs seem to play an active role in safeguarding safety online for children by offering safety packages as part of their service, and also by participating in local projects to raise public awareness, collaborating with safety nodes and producing and distributing online safety awareness-raising material for schools. These safety packages include a wide range of services such as antivirus and anti-spyware protection, defence against phishing attacks with URL filtering and anti-spam functions, detection of Wi-Fi intrusion, improved personal firewall preventing intrusions by hackers and blocking networks viruses targeting loopholes in the network, among other things (Hasebrink et al. 2008). Other countries are less active in all these respects and hence further efforts are needed.

Although the use of safety packages is widespread, (to varying extents in different European countries), the SIP-bench study (Deloitte 2008) reveals that, notwithstanding recent improvements, most filtering software on the market leaves room for improvement. Since, positively, a majority (59%) of parents declare that they use filtering or monitoring software (EC 2008), we call for continued improvements to filtering technology as well as the importance of empowering parents and educators to choose and use adequate filtering solutions.

Awareness-raising

Many risks arise out of ignorance, and awareness-raising is an often thought of and easy way to think of in reducing risks. In all countries, guidelines on how to reduce risk are available, although these require constant updating to address the rise of new risks, as do regulatory frameworks (whether Government-initiated or industry self-regulation).

The Insafe network of awareness nodes is already working to maximise awareness of online risk among parents, teachers and other stakeholders, including children. Given the development of internet use (the advent of new forms of online activity – e.g. social networking and other Web 2.0 applications) and the rise of new risks attached to these activities, the awareness campaigns need to be continually updated. Our call for awareness-raising is in line with the new Safer Internet Programme (2009 - 2013) that will co-fund projects to increase public awareness.

The use of picture and video sharing gives rise to new awareness issues with regard to *personal information risks*. Users' awareness of these risks should be a priority. Awareness materials should contain specific information on the implications of picture and video files being publicly accessible in terms of discoverability, communication of location identifying information, and syndication. It should also include the potential risks of posting pictures or videoclips to sharing sites, blogs, mblogs etc. as a permanent digital record which, once uploaded, may circulate freely in networks beyond the users control.

Such awareness-raising should focus on both the collection and dissemination of pictures and videos by adults or adolescents with a sexual interest in children, as well as their use in other forms of online abuse such as bullying and stalking. Information should also include the risks associated with producing and uploading image or video-based content which has been requested by a user whose identity the child or young person is unsure of.

Users need to be able to recognise the risks regarding personal blogging, social networking, down/uploading,

and so forth. Awareness materials should contain specific information on the potential risks of posting personal information to online public and searchable spaces, potential for identification of offline location, and content syndication. Awareness materials should further contain information about the need to be cautious of users met through automatic linking, and that automatic linking does not verify the identity of users beyond the key matching criteria.

Children should also be made aware that that their blog, site or profile may be automatically hyperlinked to others who may use this information to initiate contact for ill intentioned purposes such as grooming or bullying. They should also be advised that services exist which enable blog discussions to be monitored, and that these may be used to enable users with ill intent to join discussions and appear to be knowledgeable about specific topics.

Users need to be aware of the fact that *cyber-bullying* can have far-reaching consequences for the victim. While some victims react less emotionally to cyber-bullying, others feel threatened or harassed (Hasebrink et al. 2008). Children should be made aware that high-risk behaviour on the internet (handing passwords to peers, online posting of personal information, etc.) increases the risk of being bullied. Because of the anonymous nature of some internet communication services children believe that they can't be traced and consequently can't be punished. Also parents and schools should be made more aware of cyberbullying and related risks.

At the individual level, the priority now must be *awareness-raising among younger children* and their parents and teachers. Although they (rather than teenagers) are the fastest growing user group, little is known of their activities, skills or risks online. It seems that the internet is already a normal tool for children at the age of ten years and is increasingly becoming an attractive tool for many between the age of 6 and 10 years. It is likely that even younger children are getting online, but this is barely being researched. This emphasises the need to research younger children and to develop measures supporting safer internet use for all age groups.

Arguably, more than youth in general, attempts are needed to reach out to the vulnerable by paying particular attention to young people variously 'at risk' (including those with histories of sexual abuse, sexual orientation concerns, and patterns of off- and online risk taking) (Wolak et al. 2008). To address the risks faced by a vulnerable minority in a proportionate manner without extending undue surveillance and restrictions to the occasionally naïve, sometimes risk-taking majority is undoubtedly a difficult problem for public policy. Wolak et al (2008) also show that victims are often also perpetrators, and that those vulnerable online may also be vulnerable offline.

The relation between victims and perpetrators is yet to be clearly understood. Also, it is unclear whether children 'at risk' online are those who are also disadvantaged or suffering substantial problems offline. If they are, they may be the least likely to have parents who can support them, so relying on parents to manage their internet use may further disadvantage those already 'at risk', perpetuating cycles of disadvantage. *Identifying the vulnerable individuals* is an important task for educators and welfare professionals.

In terms of present policy**,** it is important to recognise (i) that some children perpetrate online risks, whether from malice, playfulness or mere accident, (ii) that those who tend to experience online risks may also turn to generating further risks (perhaps hitting back at those who hurt them), (iii) that those who create risks may themselves also be victims, and (iv) that those who are vulnerable online are likely to lack adequate social and parental support offline.

Parental mediation

The EU Kids Online project showed that parents practice a range of strategies for mediating their children's online activities. For the internet, as for other media, research finds that parents try to do three types of management: imposing rules and restrictions, using technical tools (such as filtering, monitoring) and using social approaches (watching, sharing, talking about the internet with their children) (Livingstone and Helsper, 2008). Parents also favour time restrictions, sitting with their children as they go online and discussing internet use, tending to prefer these social strategies to technical mediation (filtering, monitoring software).

Parental attention is mostly given to 10-11 year olds, is lower before and decreases thereafter. There is little empirical evidence that any of these mediation strategies is particularly effective in reducing children's exposure to risk or increasing their resilience to cope. However, we know parents are concerned, and in varying degrees, able to help their children. They think their children encounter more online risk at home than in school and they mediate the internet more than they do television, at least in high use countries.

In relatively low use countries (Cyprus, Italy, Greece, Portugal, Spain and Bulgaria), they seem to lack either the awareness or the skills to properly mediate internet use (Hasebrink et al. 2009). Recent research suggests that different styles of parental mediation may be more effective in different cultural contexts, depending in

part on parental values and preferred styles of parenting (Kirwil, forthcoming). Thus, when designing parental awareness-raising and mediation strategies, local contexts matter.

It seems that we need to think hard about the difference between *empowering parents* and *relying on parents* to mediate their children's internet use and safety. Research suggests that the effectiveness of the latter strategy is low (Livingstone and Helsper, 2008). Empowering parents seems best to fit the current situation. This means parents should be stimulated to improve their use of all the available solutions.

To respect children's rights to privacy, parents should be aware of what their children do online. For younger children, it is reasonable to expect that their parents will understand the internet sufficiently to guide their use, but this may not hold for their guidance of teenagers' use. They are often more expert than parents, especially if it comes to social networking and games, and so for these social media, parents should know which problems their children might face.

Safety is widely accepted as parental responsibility but parental regulation is difficult to implement because ultimately parents are autonomous when it comes to raising their children. Parental mediation might be stimulated by awareness raising campaigns or by meetings at schools. Awareness nodes in European countries should include materials in their campaigns about new risks, also including commercial risks.

Given their preference for social strategies dialogue about content could be encouraged and risk areas where dialogue is necessary, could be pointed out. Some activities seen as risky by adults may be an opportunity to teenagers (make new friends, share intimacies, push adult boundaries, enjoy risk-taking). Awareness-raising initiatives need to realize that these differences in the perceptions of risks, exist.

In general, higher socioeconomic status (SES) parents are more active in mediating their children's internet use than lower SES parents. It also appears that lower class children are more exposed to risk online. If we distinguish between the majority of well-balanced children (who nonetheless accidentally encounter problematic content), experimental or naughty children (who deliberately seek out harmful content), and vulnerable children (who are unsupported and may not cope with online risks), we realise that the latter category is most at risk, more likely to have a lower SES background and thus meets with little guidance or control from their parents.

Awareness-raising campaigns should explicitly address parents of 'vulnerable' teenagers who are more likely to be both victims and perpetrators. The EC should focus on these low socio-economic groups, not only as a part of their e-inclusion strategy, but also to raise awareness regarding risks in this group.

Parents should be encouraged to involve themselves with their children's use of the internet and mobile phones. Parents should also enhance their own knowledge of the internet, and victims should be made aware of the actions they may or must take in order to protect themselves (e.g. preservation of evidence). ISPs have a responsibility to warn parents about risks. Yet, we repeat that it is still unclear if restrictions, discussions or other guidance really work. We lack empirical research that shows parental mediation is effective and which strategy most.

Media literacy

The evidence shows that among young people, internet-related skills increase with age. This is likely to include their abilities to protect themselves from online risks. Teenagers are good in basic skills and manage handling social networking sites easily. More complex tasks like searching for information for educational purposes and estimating its reliability prove to be more difficult. It also seems that with the diffusion of internet in countries, risk awareness and then literacy initiatives gain priority on the policy agenda.

Growing interest in media literacy is in line with digital rights for children promoting positive use. In Europe, the UK, Slovenia, Netherlands, Norway and Austria stand out as being more active in terms of media literacy, while the reports on Germany and France have no explicit mention of media literacy related initiatives. Other EU Kids Online countries seem to have just a few initiatives (Hasebrink et al. 2008).

Considerable energy is invested in media literacy initiatives which see children as agents and seek to empower their decisions. Evidence supports these initiatives and point to improving more complex and analytical skills that support critical and creative capabilities of children. Media education programmes should pay more attention to *fostering children's creative participation* in online environments.

Media literacy should also support self-protection against internet risks. Media literacy initiatives for children might *best be integrated with education* (see below). Peers have a substantial influence on how children take up the opportunity for creative online activities and how they discover new things to do with the internet (Kalmus, 2007). The *value of peer-to-peer teaching* could be more effectively resourced and integrated as part of media education in schools. Furthermore, media literacy programmes are also

necessary for parents and educators to improve not only their digital skills, but also to increase their ability for dialogue with children and to give them guidance.

Research in many countries suggests that media literacy programmes, like any other form of knowledge transfer, is generally under-resourced and uneven in its implementation, and unequal in its adoption by those of differential social status. More resources should be allocated to *media literacy programmes directed specifically at low status groups* and more attention should be paid to the effective adoption of the programmes in these groups.

In some countries the responsibility for media literacy programmes is scattered over several departments, when perhaps to reach clear decisions it is best to concentrate responsibilities within a single department. Also, telecommunications companies and content providers such as public service broadcasters have a responsibility to support non-profit organisations awareness raising among target groups.

It is not yet known, crucially, whether media literacy brings real benefits in terms of protection against harm, take up for communication rights, enhancing active citizenship or creative and cultural expression and learning. Nor is it known which strategies work best for which groups or under which circumstances. In terms of media literacy programmes and initiatives, it is now *vital to conduct thorough evaluations of the diverse media literacy initiatives* being developed.

Education

The technical infrastructure of schools has been massively improved in the last years throughout Europe (with differences across countries), although not all these opportunities are available to children for actual use (see Eurydice, 2005). Countries leading in the diffusion of household internet also lead the way in digitising their educational infrastructure. In this respect, the Scandinavian countries, the Netherlands and the UK lead the way.

Diffusion differences are also tied to the general educational level of a country, so countries with high educational levels show higher internet use of children. The technical infrastructure of schools as well as the way in which the internet is integrated in the curricula and everyday teaching practices all influence children's online use at schools. In certain countries there are gaps in provision or insufficient/outdated provision of ICT in schools (Eurydice, 2005).

More widely, there are difficulties in ensuring that digital literacy in general, and internet safety in particular, is addressed as it arises across the curriculum (not simply in ICT classes), by teachers who have been recently and appropriately trained, and who have adequate resources at their disposal. In many countries, schools have tended to regard children's use of the internet at home or elsewhere (outside school) to be beyond their remit. Nonetheless, the resources of the school outstrip those of many parents, making schools the most efficient and effective way of advising children on internet use in any location.

Schools are best placed to teach children the digital and critical literacy skills required to maximise opportunities and minimise risks. Schools are also best placed to reach all children, irrespective of socioeconomic status and other forms of inequality. For both these reasons, schools have a key role to play in encouraging and supporting creative, critical and safe uses of the internet, crucially throughout the curriculum, but also at home or elsewhere.

Given the lack of critical knowledge of the online environment, especially its political, commercial and safety dimensions, teachers could also give a higher priority to guiding children in making informed choices online. As the online environment – in terms of platforms, contents and services, as well as regulatory and cultural conditions of use – continues to change, this education too must be continually revised and updated.

Countries who are 'ahead' in the development and provision of educational programmes (e.g. the Think U Know campaign in the UK, which seeks to address the risk of sexual contact by adults with children, with specifically-tailored materials to reach parents and children), can be used as examples for other European countries. The incorporation of online safety materials into school curricula (c.f. European Schoolnet[24]) should also include mobile media.

Stimulating coping behaviour of children

Once exposed to risk, how do children respond? Children's ability to cope with online risk varies across types of risks, cultures, gender and age. Across Europe there is demographic and national variation in responses to risks. These differences point to a range of factors that shape coping responses, some of which may impede appropriate self-protective actions (Staksrud and Livingstone 2008). It seems plausible that their coping strategies depend on how they themselves regard the risk. In psychological research, this question is being framed in terms of adolescents' development of 'resilience'. Thus far little is known of children's abilities to cope with, or their resilience towards, online risk.

Some findings do exist, however, and these are often promising, for they tend to suggest that online risks

may be brushed off, or disregarded, by the majority of young people. But what do children do when faced with more serious risks? They are often reluctant to tell an adult about their negative experiences on the internet and would rather tell a friend. Thus children do use strategies to cope with online risks and results from qualitative research suggests that children feel in control and confident in using these strategies.

However, whether these strategies are effective remains unknown (Hasebrink et al. 2009). More attention should be given to how children do and should cope when they encounter such risks. We recommend policy makers to develop guidelines for coping strategies that go beyond "tell a teacher or parent" of which we know it does not work.

Co- and self-regulatory codes and practices

In several countries, and at the level of the EC (e.g. Safer Internet Programme), self-and co-regulatory initiatives are underway to address content labelling and trust marks, age verification, social networking, moderation of interactive services, managing mobile services, and so forth (Pricewaterhouse Coopers 2009; EC Social Networking Task Force 2009). These are particularly important for content that is not illegal but which, research suggests, can be harmful to children.[25] As research also shows, substantial proportions of children are encountering, often accidentally, pornographic, violent, hostile or racist content, and many lack the tools and skills by which they (or their parents) can prevent such exposure.

Anglo-Saxon, Northern and Central European countries have a greater tradition of self-regulation than Latin and Southern European countries, in which legislation plays a more important role than self-regulation. Ongoing work in Europe and elsewhere (FOSI, 2008; AOL, 2004) includes efforts to ensure that risk and safety considerations are the focus of self-regulatory actions by the industry. These efforts preceded the new proposal of the Safer Internet Programme (2009 - 2013) to co-fund projects to foster self-regulatory initiatives in this field and involve children in creating a safer online environment.

Self-regulation is well established in the world of games. Pan-European Game Information (PEGI) was introduced in 2003 as an age classification system in European countries in order to help parents make deliberate decisions about the acquisition of computer games in shops. Nearly all games that are released in Europe have been PEGI classified. Major players who publish these games (such as Sony Playstation, Microsoft Xbox and Nintendo) comply with the PEGI rating. Online gaming/internet is different and is hard to control. Next, the EC contributed to the development of PEGI Online (PO) as an addition to PEGI. PO is not a rating system but a tool that offers the following:

- Companies active in online gaming (e.g. World of Warcraft) may associate themselves with PO and comply to a code of conduct as a way of making online gaming as safe as possible (see www.pegionline.eu). They should have a privacy code and possibilities for registering complaints.
- Associated companies may associate their website(s) with a PO label if the games on these websites are classified with PEGI or other official European system (USK in Dld or BBFC in UK).
- The PO website informs consumers and parents on aspects of online gaming including risks.

The number of PO companies is limited compared to the number of publishers participating in PEGI (classic). We recommend that the EC should support the wider introduction of PO and to strengthen the work on PO by the Interactive Software Federation of Europe (ISFE). We further recommend governments to give support to national organisations that aim to increase the number of PO members such as NICAM in the Netherlands. This further means collaboration with industry which should support age classification and restriction mechanisms.

Other online content (apart from games) is much less subject to self-regulation and further discussion on how to organise safe websites is necessary. Here mobile operators and social networking sites have a responsibility to monitor inappropriate content accessed by children, especially video content. Internet service providers should:

- ensure that picture and video sharing accounts and profiles are set to private as default for new child users,
- ensure that any change to a public setting is accompanied with necessary safety information,
- ensure that they have adequate reporting structures in place for users,
- ensure that they have a clear chain of communication with relevant law enforcement and child protection agencies where necessary.

ISPs can also provide technical protections against risks related to personal blogging or to social networking. On Safer Internet Day 2009, the EC's Safer Internet Programme presented principles for guidance on social networking (EC 2009), and these

were signed up to by all the major industry players. The following recommendations should support these principles or elaborate the measures that were proposed to support these principles.

- Interactive services targeting young people should sign up to a voluntary code preventing the specification of users' location below the level of granularity of their city or county.

- They should focus on ensuring that access to blogs, profiles etc is set to private as default for new users by service providers, and if subsequently changed to public access is accompanied by safety warnings to users.

- Minimum standards should also be established governing sign up procedures for new accounts.

- New account holders should be provided with adequate information regarding the risks associated with uploading personal, private, text and picture-based information to blogs, mblogs and other online social networking environments.

- Service providers should focus on ensuring that social network engineering does not allow linking between adults and users under 16 years old.

- In addition, new users should be provided with adequate information regarding the risks associated with automatic linking to other users based on age, location and interests.

Also, ISPs can provide technical protections against cyber-bullying risks:

- Internet providers and mobile telephone operators must enforce their terms and conditions of use and remove persistent abusers from their networks.

- Schools should assume responsibility in the case of cyber-bullying, as this new form of bullying is often an extension of classic bullying behaviour (or may occasion it). Schools should have specific policies in place to deal with cyber-bullying.

More efforts are needed in developing the self-regulation of ISPs. For example, not all ISPs provide specific or sufficient guidance for parents regarding their children's safety, and most parents do not know how to seek this from their ISP, relying instead on friends and family (Eurobarometer, 2008). Further, many children continue to encounter age-inappropriate content or conduct, necessitating urgent improvement to the functioning and the robustness of age-verification procedures (see Youth Protection Round Table's Toolkit[26]). Thus governments should review the effectiveness of self-regulatory provision in improving children's safety online as this is yet to be evaluated independently, and the processes underpinning self-regulation are not always transparent.

3. Recommendations for research

Although the body of available studies continues to grow, there are significant gaps in the evidence base. We pinpoint these below, first in summary and then in more detail, as recommendations for the future research agenda.[27] (Note that in Stald & Haddon, 2008, we discuss some reasons for these gaps).

3.1 Key points

Too little focus on younger children

- Children of primary school age and even younger, are increasingly gaining access to the internet. During the course of the EU Kids Online project there has been an increase in research on children younger than 12 but this age group remains a priority: they use the internet in substantial numbers (60% of 6-10 year olds online in EU27) and their online experiences may challenge their maturity to cope, especially with unanticipated risk. Of the available research focused on younger children, little concerns risk.

- It seems likely that even younger children are also online, both now and in the future. Having classified countries according to children's internet use (high/medium/low), EU Kids Online estimated the likelihood of children younger than six being online, using the 2008 Eurobarometer figures: since these are estimates only, they should be treated with caution; the point is to stress that little or nothing is yet known of younger children's use.

- At the same time, since teenagers continue to lead in depth and breadth of use, and since they are likely to take the most risks, continued research on teenagers is also important.

Too little focus on diverse platforms

- Most research concerns the fixed internet. Online contents and services accessed via mobile phones, games consoles and other devices raise new challenges that demand investigation, especially given implications for parental supervision and safety awareness.

- Much research concerns the use of websites (i.e. web 1.0) rather than interactive, peer-to-peer, multi-user applications accessed via convergent platforms and emerging technologies (i.e. web 2.0 or 3.0). Research on activities and norms associated with peer-to-peer exchange and user-generated content is urgent.

Gaps in evidence for online opportunities

- Evidence regarding access and frequency of use is fairly plentiful, but much less is known of how children use the internet. Especially urgent questions concern:

  - Skills of navigation and search, content interpretation and, especially vital, critical evaluation – all important for media literacy and online learning.

  - User-generated content creation and other forms of networking – increasingly important for identity, sociality, creativity and civic participation.

- Particularly in countries where research is generally sparse, and in countries new to the internet, these gaps are substantial:

  - For example, little is known of online opportunities in Bulgaria, the Czech Republic or Slovenia; perhaps surprisingly, such gaps also exist in Germany and the Netherlands, where otherwise there is a good body of research.

  - Nordic countries pay more attention to civic participation, research on social networking is concentrated in Denmark, Norway, Sweden and the UK, little is known of gaming cultures especially in Southern Europe.

Gaps in evidence for online risks

- There is a fair body of research on content (mainly pornographic and/or violent), contact (mainly from strangers) and privacy risks, especially in Northern Europe, but this requires updating and deepening in most or all countries. Little research on risks was found in some countries (Bulgaria, Estonia, the Netherlands, the Czech Republic, Portugal, Slovenia) despite indications than some of these are, relatively speaking, 'higher risk' countries (Hasebrink et al, 2009). Research is growing on cyberbullying and peer/conduct risks.

- Certain risks remain little researched, despite their importance. These include challenging content (e.g. self-harm, suicide, pro-anorexia, drugs, hate/racism), user-generated content, gambling, addiction, illegal downloading, and commercial risks (sponsorship, embedded or viral marketing, use of personal data, GPS tracking).

- Little is known about how children (or parents) respond to online risk. Future research must focus not only on incidence but also on any long-term consequences of online risk, including evaluating

the effectiveness of children's coping strategies. It must also acknowledge that some children seek out or perpetrate risks, thus requiring different strategies for awareness and protection.

- Few indicators are available by which to identify particularly vulnerable or 'at risk' children within the general population, though, as noted earlier, it seems likely that those who are vulnerable offline may also be vulnerable online, that victims and perpetrators may be one and the same, and that these are precisely the children who also lack parental or other forms of support.[28] Too little research draws on the insights of clinicians, child protection or even law enforcement agencies' knowledge of victims.

Gaps in understanding the role of adult mediators - parents, teachers, others

- Research is beginning to identify clear styles of parental mediation or regulation, but research on which strategies are used by parents in different countries is often lacking. In particular, little is known about the effectiveness of these different strategies in terms of reducing risk (preferably without also reducing opportunities).

- Most research on parenting relies on asking parents or teachers about children's use of the internet at home or school, neglecting children's often different perspectives on the internet, risks, adult supervision and coping. Social desirability effects may be strong – with parental concern leading them to exaggerate safety practices.

- The research agenda should now encompass evaluations of the effectiveness of forms of mediation – technical solutions, parental mediation, media literacy, other awareness and safety measures – not just in terms of the ease of implementation but more importantly in terms of their impact on risk reduction. This may vary for different groups of children and in different countries or cultural contexts.

- Similar observations may be made regarding the mediating role of teachers – more research is needed on teachers' skills and literacy, their mediating practices in the classroom, and the effectiveness of their role in improving children's risk awareness and online safety.

- A minority of children also use the internet in libraries, computer clubs, cybercafés and so forth. The role and expertise of the supervising adults in such locations has been barely examined.

3.2. Detailed research recommendations

The work of the EU Kids Online network has shown that in 21 European countries a considerable body of research has been conducted on children and new media. In Work Package 1 (WP1), 235 studies on a variety of topics were identified by January 2008. Since then, further studies have been identified, totalling nearly 400 in all, although these do not greatly alter the broad pattern of research strengths and gaps discussed in what follows (c.f. Staksrud et al, 2009; Livingstone and Haddon, in press).

This specification of research gaps is an important step in pushing the borders of our knowledge. Furthermore, the identification of research gaps and the clash of contradictory evidence from different settings may give rise to new questions that inspire the formulation of new theory. However, a new research agenda can not only be based on theory-driven questions, but should also include the information needed for policy and practice.

In what follows, we propose an agenda for new research. These research recommendations are based on (a) the identification of research gaps in WP1, (b) the confrontation of these gaps with policy priorities and (c) the consultation of stakeholders with direct experience in working with children and how they use new media.

More focus needed on young children

The WP1 report (Staksrud et al, 2009) concluded that children of primary school age, and even younger, are increasingly gaining access to the internet, yet most research concerns teenagers. Very few studies on the uses and effects of the internet have included young children and preadolescents in their samples.

Yet a rapidly growing number of 7- to 12-year-olds use the internet for interpersonal interaction (Valkenburg & Soeters, 2001). The age at which young people start using the internet seems to drop over the years (Duimel & De Haan, 2007). Because young children's way of learning to use the medium and their ways of navigating are different, the positive and negative consequences that they experience may also be different. Young children now start using the internet before they are able to read and write. However this may lead to specific risks.

Increasing the body of research on children younger than 12 is now a priority (without losing sight of the needs of teenagers), since their cognitive and emotional levels of (im)maturity may challenge their abilities to cope with unanticipated risks. Investigating

the prevalence of risks and strategies to counteract these risks is especially important for preadolescent, because they have little experience with intimacy and social interaction with peers. These young children are also vulnerable to commercial risks.

More focus needed on use of mobile applications

WP1 concludes that most research regarding online technologies is focused on the fixed internet. The use of mobile media has increased tremendously among children and adolescents. There is hardly any information on even the most basic questions about the use and the consequences of these technologies.

For example, how does children's mobile phone use compare with their use of instant messaging? What kind of information do they receive on their mobile phone? How often do they receive risky information through their mobile phone? When the internet becomes available on mobile devices at affordable costs this will boost new developments in use as it will probably also stimulate the development of new services targeted on children. As soon as the mobile internet at a fixed fee becomes available, as is already the case in some countries, children will probably start using these opportunities on a massive scale. This not only involves new challenging opportunities as regards use but probably also new risks, such as mobile harassment, and privacy violations.

The consequences for the relationship between parents and their children with regards to their media education may be serious. It will become even more difficult for parents to monitor their children's media use and to act as gate-keepers who filter incoming information for their children. This may induce other forms of guidance or even protection. Thus, new, interactive, online media accessed via mobile phones, mobile games console, convergent devices etc. may raise new questions and challenges for research and policy.

The new multiplatform media environment may call for new research strategies. Media consumption is becoming more and more fragmented, it often goes beyond contents offered by broadcasters and it seems to be shaped mainly by communities of belonging. Given these premises, one of the most important challenges for present and future research is to move from analysis on single media towards functions and users' experience.

More focus needed on cross media aspects of digital media

Traditionally uses and meanings of media are studied in the context of the individual medium (television, music, books, computer games), or as general media cultures. But even if digital media are still diverse in respect of the specific uses they afford most, they also cause completely new ways of crossing between media platforms, media content and media aesthetics. Children are uploading, downloading and creating content between platforms and they switch between their digital media according to the immediate need and situation (Hagen & Wold, 2009).

Research should focus more on the potential and consequences of cross media aspects of children's media uses in respect of technological, content and aesthetic convergence, of level of interactivity on and between platforms, and on combinations of creative, communicative and informational aspects of cross-media commuting. Future media and communication technologies are likely to enforce this development.

More focus needed on the use of Web 2.0 applications and content creation

In existing research relatively little attention has been spent on interactive, peer-to-peer, multi-user applications accessed via convergent platforms and emerging technologies (i.e., web 2.0). Adolescents are the defining users of many 2.0 applications. Mostly, we lack information on the social consequences of these applications.

For example, what are the consequences for their social networks? How do they contribute or hinder identity formation in adolescents? Which children benefit most from these applications? Who are most vulnerable to the risks of these applications? Are there primarily opportunities for some teenagers and risks for the others, and, if so, why? Besides the opportunities and risks with regard to social contacts, the use of web 2.0 applications also influences issues of privacy and copyright. Do teenagers know what the consequences are in the longer run of posting all this identity profiling information on the net? To what extent are they familiar with legal issues concerning file sharing?

Content creation is important for their identity, expression and creativity. Identity management is a serious concern for the present generation of youth. The child as a producer of information opens up a whole new set of questions. These questions focus around changes in conduct online.

More attention for risk and safety

As children gain progressively more access to fixed and mobile platforms, it will be vital that research quickly examines children's practices, addressing questions of risk and safety, parental mediation and media literacy. In this paragraph we address the rise

of new risks and related safety issues. More research is needed regarding the risks of children's online activities, as the development of new ICT's is rapid, social networking and other new services are on the rise, new and more attractive games are becoming available. Gaming websites are turning into huge portals, where social networking is included and visa versa as social networking sites start offering games on their sites (see for My Space www.games.myspace.nl). Even browser games may be harmful (in the Netherlands, for example, sites such as www.spele.nl and www.speelzolder.com).

Future research should examine the consequences of youth's massive membership of social networking sites for identity development, self-esteem, and wellbeing. Research on content and contact risks is lacking in some countries, and it requires updating and deepening in most or all countries.

New risks that are still under-researched include exposure to challenging content (e.g. suicide, anorexia, drugs, etc.), risks associated with user-generated content and online gambling and the extent to which children have shock and awe experiences from scary pictures, video or games (that children send each other). Only if we can map the range of opportunities and risks on the internet, and who are exposed to these risks and opportunities, are we able to design adequate intervention programmes to maximise benefits and minimise risks.

Minimising risks or improving safety can be accomplished by various means. Parents can play an active part (see section on parental mediation), schools have their responsibilities (see paragraph on schools), and gaming and social networking sites should take their responsibility by implementing more or less active forms of self regulation.

Attention should also be given to conduct risks – those which children may cause to their peers or other people, see Hasebrink et al. (2009). These may include illegally downloading, sending offensive messages, cyber-bullying other children, happy slapping, publishing porn or violation of privacy.
Some children are more at risk than others. Children with low learning abilities of psychological problems may be more vulnerable than other children.

More attention to commercial risks

Commercial risks are a specific gap in our knowledge of online risks. Exposure to advertising, product placement, sponsorship and other commercial messages has long been of concern in the contexts of audiovisual and other media. In line with this, the exposure to online commercial content should receive more attention. Golden times for marketing seem to emerge now that the possibilities of direct targeting are increasing rapidly.

A recent Dutch study on digital advertising and children (Mijn Kind Online, 2008) identified many new, and sometimes unethical advertising strategies geared towards young people, in addition to a progressively blurring distinction between commercial information and editorial content. In the UK, a recent study revealed children's (and adults') difficulties in discriminating between commercial and public content online (Fielder et al., 2007). In addition, online games sites gather personal information about their players in log files, which they often use for direct marketing, targeting their members.

Marketing strategies will probably push the limits of what is acceptable in approaching children. Youth marketing is also becoming much more immersive and integrated into content – this is a result of on demand media and the reality that young people have far more media coming at them on multiple screens and are skipping ads with Tivos and DVRs.

The challenge for those concerned with the wellbeing of youth is how to teach them to be able to identify marketing within content.[29] To what extent are young people able to do so? How do they react? Can the identification of commercial content be improved by promoting media literacy? Which coping strategies do young people use (e.g. delete your spam; install pop up killers, etc.) Another research focus could be how young people perceive their online privacy in commercial communities, and how these perceptions influence their online behaviour.

As in other domains of use there is the question of consequences. What are the effects of exposure to commercial content? Special attention is required for the risks of children of/for affiliate marketing and behavioural targeting. We all leave footprints in the virtual world, but to what extent are these digital steps traced by marketers? How often do children encounter inappropriate domains due to typographical errors in search terms? How much digital advertisement do children receive for unhealthy food? Do children ask permission to their parents before they buy something online or do the children nag their parents to buy it for them?

To what extent is regulation effective? Television has strong regulation, while the internet has, at present, much weaker regulation (Millwood Hargrave and Livingstone, 2009). Future research should examine how branded entertainment and network communities for young people handle privacy regulations and with what differences.

More attention to media literacy

In WP1 it was established that with regard to media literacy for online technologies, there is more research regarding children's abilities to access and use online resources than than there is on the important ability to evaluate critically what they find or, indeed, to create content of their own choosing.

Paying attention to children's ability to critically evaluate internet content is crucial, because such abilities may diminish potential risk of the internet and stimulate its opportunities. Only when internet users are able to critically evaluate what they find or create can they adequately use this information. Especially children aged 8-12 may have difficulties to distinguish between reliable and unreliable information.

Children surf to places where (they say) they don't want to go. Furthermore children receive a lot of content (films, websites, programmes) which they use on the basis of trust in the sender. In this way they are confronted with possibly harmful content. How often do they read or watch this content? Do they read or see things they don't want to see (such as sex, violence, discrimination)? How do they assess the value of content? Since there is a lot of unreliable information, media education programmes could especially focus on *positive information*, information we want our children to see and read.

In countries which accord more attention to the risks of children, a possibly confusing array of help sites has arisen. What criteria apply for these sites for successful exploitation and how can these sites conform to high quality standards? This applies to safety issues such as the careful management of personal information which should for example not be exposed to Google Analytics. Help sites should provide victims with contact to fellow-sufferers through fora, but these sites should also prevent meeting adults with bad intentions. How do children find their way to high quality help sites?

More attention to parental mediation

Little is known about the effects of the efforts of parents to promote safe internet use. Of course parents (and other educators as well) are continuously lagging behind in their responses to technological changes in society. This is inevitable. Anticipating new behaviour of children by parents is too much to ask. However the reaction time and the effectiveness of response could be improved. New phenomenon must be picked up as soon as possible. In this way risky behaviour can be monitored and influenced. Research on the effectiveness of parental mediation is lacking in most countries.

Providing parents with information about online behaviour of children and ways in which to guide risky behaviour is necessary and this could, for instance be provided in websites. How many of these sites exist in various countries, which parents ever visit these, what they learn, how they assess their reliability and so on, and what they find acceptable are all questions awaiting an answer. It is also necessary to figure out how they estimate the harmfulness of content in relation to the age of their children (a website without violence or porn may not be a good site for children).

Research needs to point out to what extent parents are familiar with what their children do online, how they monitor the online behaviour of their children and the ways in which they try to influence their behaviour. Outcomes of such research may inform new campaigns on advising parents There is little research on how parents in different countries use and perceive the use of safety measures.

Where research charts parental and children's attitudes or concerns in general, it rarely explores the effectiveness of particular safety measures (e.g. use of filtering software or, even, parental media literacy). In the future, research should examine whether and when parents put safety guidance into practice, along with an evaluation of any benefits. Therefore more evaluation research is needed into the effects of parental mediation.

Rarely is baseline research conducted at the time new campaigns begin, making it impossible to establish whether these measures were effective and to what extent, or which out of several opportunities was most efficient. Therefore more research is needed into the effectiveness of different kinds of interventions, also including teaching materials. Based on such research, better underpinned guidelines can be given to parents and teachers.

Gaps regarding the role of teachers

There is also a shortage of research on the mediating role of teachers. This should focus both on teachers' skills and literacy (including their training needs) and on their mediating practices within the classroom. Third, evaluation research is needed to assess the effectiveness (or otherwise) of their role in improving children's risk awareness and online safety.
There is considerable variation across countries in the extent to which safety awareness is, and should be, incorporated into a wider media literacy curriculum. Moreover, investment in media education is, itself, underdeveloped and under-resourced in many countries. More knowledge is needed on how to effectively integrate the use of new media in the media literacy of pupils.

Some research shows that teachers are catching up in terms of their instrumental skills in using computers and the internet. This appears to be a necessary first step towards improving the use of the internet for educational purposes. Furthermore, educators and parents could focus on their ability to mentor and to share wisdom. In the Netherlands, research shows that if children between 10 and 14 years are taught about the internet, the focus is mostly on the risks (Veldkamp 2008).

In order to teach children to reflect on the use of new media they must also be able to apply what is valuable on the net in a positive way, and to express themselves creatively in a safe way. Future research could focus on creating and testing positive environments on the internet as well as creating and evaluating spaces where teachers, parents and children all collaborate and interact with regard to safer uses of the internet. The extent to which educators and parents engage in coaching children as well as the approaches used, is also unknown.

To a varying degree in different countries across Europe, children also access the internet in libraries, community centres and cybercafés. Although this constitutes a minority of users, these sites are significant insofar as they represent opportunities for online activities that are precisely not supervised by either parents or teachers. The role of the responsible adult in these settings has received little attention as yet. There are, however, lively discussions within the librarianship community regarding the balance between safety and freedom to explore, and in relation to community or youth centres, a child-welfare perspective is predominant. In cybercafés, which unlike the other two spaces are commercial and not public sector, the responsibility of adults present to supervise, guide or restrict children's activities is little considered but should, arguably, gain future attention.

Coping strategies and long term effects

There is also relatively little research on how children (or parents) cope with or respond to online risks, with efforts devoted to the incidence more than the consequences, coping strategies, or long term effects of exposure to risk. Buckingham (1996) argued, in relation to upsetting television content, that children can be shocked, fearful or upset during exposure but, generally, learn to cope by, first, choosing content that is a little but not much too old for them and, second, learning that their emotional responses do not last. Cantor (2002), by contrast, shows that children's fear responses to television may last even into adulthood, with continued nightmares, avoidance practices and anxiety.

Less is known regarding exposure to online risk, though by comparison with television the varieties of online risk include far more extreme forms of potential harm – in terms of both content (violence, pornography, race hate, etc) and contact (bullying, grooming, harassment, abuse). Not all teenagers feel upset, distressed or threatened by the same content or contact experienced on the internet (Nightingale et al., 2000). New research might explain why some shrug off experiences that distress others.

Fill gaps in the evidence base in some countries

The amount and quality of research on new media use by children varies among European countries. As was noticed in the WP1-report there are *particular gaps* in the evidence base in some countries, mainly those in which research is overall rather sparse. Note that the absence of empirical research on a particular topic, for a particular group or in a particular country does not necessarily point to a significant gap.

Research conducted elsewhere may effectively guide the promotion of safety awareness even in countries where little research exists. In this way one country may learn from the experiences of another. But in general, findings may be country-specific, and what works in one country may not be helpful in another. Findings regarding risk and effective awareness-raising may be best based on national research.

Staksrud, et al (2009) observed several key gaps:

- research on the interpretation of, creation of, and frustrations with online content is particularly needed in Bulgaria, the Czech Republic, Slovenia and, perhaps more surprisingly, in Germany and the Netherlands, where otherwise there is a good body of research;
- research on civic participation, communication and gender is prevalent in the Nordic countries (though there are exceptions); for other countries these are priorities for research;
- research on social networking appears concentrated in just a few countries (Sweden, the UK, Denmark, Norway, the Netherlands);
- research on online learning is lacking in most countries, while entertainment activities seem more researched in Northern Europe than elsewhere;
- research on children and media use in the new access countries, or rather the lack of it, reflects the fact they mostly do not have a longstanding theoretical tradition in this area

Comparison of results between countries may promote insight in the way different circumstances produce different effects. Therefore comparable data from all countries are needed.

More theory-based research

Research findings in Europe are often theoretically relevant but under-analysed. We need theory to point out why effects occur in some countries and not or to a lesser extent in other countries. Within the EU Kids Online framework, a theoretical model was developed that distinguishes between individual factors and factors at country levels and which maps the interactions among variables in such a way that further hypotheses can be clearly stated (Hasebrink et al. 2009).

Theory should specify which mechanisms underlie the relationship between these factors and the risks and opportunities young people face in their use of ICTs. Empirical research should provide information on the relative strength of the influencing factors. The theoretical underpinning should increase our understanding of these new phenomena and direct attention to likely strategies for reducing risks and increasing positive use.

Towards new data collection

New research agendas require new fieldwork. In addition to identifying relevant areas for future research, one must pay attention to how this should be carried out. Several guidelines can be provided in this regard (see Lobe et al. 2007).

First of all, there are many studies but few are representative for countries, these studies are required in order to compare between countries.

Second there is a strong need for multi-actor data, i.e. datasets in which data from several groups are included (children, parents, teachers). Often questions of risk and safety involve more than one person, and being able to relate information at the individual level by different kinds of persons, can improve our understanding these issues.

Third, multi-method, triangulated approaches are needed, combining quantitative and qualitative data (see Lobe et al., 2007).

Fourth, more studies should be longitudinal, or at least repeated studies based on similar research design. Longitudinal and repeated studies provide opportunities to study the influence of different factors that shape the changes in use and meanings of digital media and their social consequences. In order to get a stronger grip on the issue of causality, panel data are needed, retrieving information from the same people at different points in time.

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5. The EU Kids Online Network

Annex A: EU Kids Online

EU Kids Online is a thematic network examining European research on cultural, contextual and risk issues in children's safe use of the internet and new media between 2006 and 2009. It focuses on the intersection of three domains:

- Children (mainly up to 18 years old), their families, domestic users
- Online technologies, especially the internet; focussing on use and risk issues
- European, cross-national, empirical research and policy

This network is not funded to conduct new empirical research but rather to identify, compare and draw conclusions from existing and ongoing research across Europe.

It is funded by the European Commission's *Safer Internet plus Programme* (see http://europa.eu.int/information_society/activities/sip/index_en.htm) and coordinated by the Department of Media and Communications at the London School of Economics, guided by an International Advisory Board and liaison with national policy/NGO advisors.

EU Kids Online includes research teams in 21 member states, selected to span diversity in countries, academic disciplines and expertise: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, France, Germany, Greece, Iceland, Ireland, Italy, Norway, Poland, Portugal, Slovenia, Spain, Sweden, The Netherlands and The United Kingdom.

The objectives, to be achieved via seven work packages, are:

- To identify and evaluate available data on children's and families' use of the internet and new online technologies, noting gaps in the evidence base (WP1)
- To understand the research in context and inform the research agenda (WP2)
- To compare findings across diverse European countries, so as to identify risks and safety concerns, their distribution, significance and consequences (WP3)
- To understand these risks in the context of the changing media environment, cultural contexts of childhood and family, and regulatory/policy contexts (WP2&3)
- To enhance the understanding of methodological issues and challenges involved in studying children, online technologies, and cross-national comparisons (WP4)
- To develop evidence-based policy recommendations for awareness-raising, media literacy and other actions to promote safer use of the internet/online technologies (WP5)
- To network researchers across Europe to share and compare data, findings, theory, disciplines and methodological approaches (WP1-7)

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6. Endnotes

1 Terminology is difficult here. We refer in this report either to 'children and young people' (the preferred term for many) or just to 'children'. Where research applies only or mainly to teenagers, we make a distinction between (younger) children (0-12) and teenagers (13-18). Our focus, to be precise, is on those under 18 – legal minors in both EC and UN frameworks. Terminology for the technology at issue is equally problematic. The EC Safer Internet Programme centres on 'the internet and online technologies'. This category intersects with the broader terms 'digital media', 'ICTs' and 'new media', but is restricted to that which is online, a restriction we follow here. In practice, most research concerns 'the internet', generally the 'fixed internet', for research on children's use of online technologies via mobile phone, games console, etc., remains limited or non-existent in most countries

2 This new programme fights not only illegal content but also harmful conduct such as grooming and bullying and will further address the risks that coincide with the rise of recent communications services from the web 2.0, such as social networking. It further seeks to promote a safer environment and to contribute to the awareness-raising of risks of new online technologies, including mobile and broadband content, online games, peer-to-peer file transfer, and all forms of real-time communications.

3 See https://www.inhope.org/

4 See http://www.saferinternet.org/ww/en/pub/insafe/index.htm

5 Furthermore alarming stories about ripping off children and their parents by commercial parties have become more prevalent. Sometimes young children are 'advised' during a commercial break to 'grab your parents [credit card] now'. In Scandinavian countries, when in Habbo Hotel or while using (supposedly free) SMS-services, children spend a lot of money on this from their cell phones or from their parents' credit cards.

6 The concept of policy windows was offered as a theoretical construct by Kingdon (1995) where he described a policy window as arising from the combination of three streams: problem definition, agenda setting, and selection of policy alternatives.

7 See http://ec.europa.eu/information_society/events/ict_riga_2006/doc/declaration_riga.pdf

8 See http://ec.europa.eu/information_society/activities/e-Inclusion/docs/i2010_initiative/rigadashboard.doc

9 See http://ec.europa.eu/avpolicy/media_literacy/docs/report_on_ml_2007.pdf. See also http://ec.europa.eu/avpolicy/media_literacy/studies/index_en.htm for a mapping out of recent practices in implementing media literacy in Europe

10 See http://ec.europa.eu/comm/avpolicy/media_literacy/index_en.htm. See also the EC's Expert Group on Media Literacy at http://ec.europa.eu/comm/avpolicy/media_literacy/expert_group/index_en.htm. The Council of Europe also stresses the importance of media literacy, focusing on child protection and empowerment. See http://www.coe.int/T/E/Com/Files/Ministerial-Conferences/2005-kiev/texte_adopte.asp

11 See Annex I, point 3 of the Multiannual Community Action Plan on Promoting Safer Use of the Internet

12 See http://ec.europa.eu/information_society/activities/sip/archived/docs/html/decision/276_1999_EC.htm

13 See http://ec.europa.eu/information_society/activities/sip/programme/index_en.htm

14 See the Safer Internet Plus Work Programme March 11th 2008, http://ec.europa.eu/information_society/activities/sip/docs/call_2008/sip_work_programme_en_2008.pdf

And http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/1899

15 Information about current projects running and the awareness network as a whole can be found at http://ec.europa.eu/information_society/activities/sip/projects/index_en.htm . For information about previous awareness projects and geographical coverage see http://ec.europa.eu/information_society/activities/sip/projects/awareness/closed_projects/index_en.htm

16 For further information, see European Schoolnet (http://www.eun.org/portal/index.htm).

17 More exactly, at the Lisbon summit in March 2000, where the EU's Governments agreed upon the need of finding new ways of improving the education systems. Cf. EC (2000).

18 A first report was elaborated in 2001 (see EC, 2001) followed by a joint work programme delivered in 2002 (see EC, 2002).

19 Present EU programme for learning throughout life (Lifelong Learning Programme 2007-2013), was established in 2006 and continues the previous programme Socrates. This programme includes several other sub-programmes aimed at different levels of education and populations, notably schools, higher education, vocational education and training and adult education. For further information, see http://ec.europa.eu/education/programmes/newprog/index_en.htm.

20 See for instance the "Child Alert" system recently launched in several European countries

21 As amended by the directive 2006/24/EC of 15 March 2006 on the retention of data generated or processed in connection with the provision of publicly available electronic communications services or of public communications networks.

22 See http://ec.europa.eu/information_society/activities/sip/public_consultation/index_en.htm (accessed 09.10.08)

23 See http://www.pegi.info/ and http://www.pegionline.eu for more information on the specific features of the rating.

24 See http://www.eun.org/portal/index.htm

25 Regarding pornography, see Peter & Valkenburg (2006). For a review, see Millwood Hargrave, A., Livingstone, S., & with others. (2009).

26 See http://www.yprt.eu/transfer/assets/final_YPRT_Toolkit.pdf

27 Note that the absence of empirical research on a particular topic, group or country may not point to a significant gap: a country may learn from the experience of others without conducting its own research.

28 See Internet Safety Technical Task Force (2008).

29 see http://youngmarketing.web-log.nl/youngmarketing/2008/03/11-vragen-aan-a.html