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Children's Use of Online Technologies in Europe

A review of the European evidence base

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with members of the
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- Livingstone, S., Kirwil, L, Ponte, C. and Staksrud, E., with the EU Kids Online Network (2013) In their own words: What bothers children online? LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/48357/>
- D'Haenens, L, Vandonink, S. and Donoso, V. (2013) How to cope and build resilience. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/48115/>
- Livingstone, S., Ólafsson, K., O'Neill, B and Donoso, V. (2012) Towards a better internet for children: findings and recommendations from EU Kids Online to inform the CEO coalition. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/44213/>
- Haddon, L., Livingstone, S. and the EU Kids Online network (2012) EU Kids Online: National perspectives. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/46878/>
- Smahel, D., Helsper, E., Green, L., Kalmus, V., Blinka, L. & Ólafsson, K. (2012) Excessive internet use among European children. LSE, London: EU Kids Online. <http://eprints.lse.ac.uk/47344/>
- Dürager, A. & Livingstone, S. (2012) How can parents support children's internet safety? <http://eprints.lse.ac.uk/id/eprint/42872>
- Livingstone, S., Haddon, L., Görzig, A., and Ólafsson (2011) EU Kids Online Final Report. <http://eprints.lse.ac.uk/39351/>
- Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) Risks and safety on the internet: The perspective of European children. <http://eprints.lse.ac.uk/33731/>
- Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011) Disadvantaged children and online risk. <http://eprints.lse.ac.uk/39385/>
- Livingstone, S., Ólafsson, K. and Staksrud, E. (2011) Social networking, age and privacy. <http://eprints.lse.ac.uk/35849/>
- Sonck, N., Livingstone, S., Kuiper, E. and de Haan, J. (2011) Digital literacy and safety skills. <http://eprints.lse.ac.uk/33733/>
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- Görzig, A. (2011) Who bullies and who is bullied online? A study of 9-16 year old internet users in 25 European countries. <http://eprints.lse.ac.uk/39601/>
- O'Neill, B., Livingstone, S. and McLaughlin, S. (2011). Final recommendations for policy, methodology and research. <http://eprints.lse.ac.uk/39410/>
- Livingstone, S. and Ólafsson, K. (2011) Risky communication online. <http://eprints.lse.ac.uk/33732/>
- Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children: Full findings*. <http://eprints.lse.ac.uk/33731/>

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

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

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

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EXECUTIVE SUMMARY

Background

The past decade of technological change has been accompanied by a decade of research seeking to understand the nature of these changes as they shape everyday life, tracing their social consequences within the home, for parents and children, for the peer group, at school, and in the wider society.

A major conclusion in the EU Kids Online I project in 2009 was that a robust, comparable and up to date portrait of online risks encountered by European children is lacking. The EU Kids Online II survey was organised directly to address the need for comparable research findings across countries on the basis of which recommendations for child safety, media literacy and awareness could be formulated.

The European evidence database

To maintain an updated picture of the evidence base. EU Kids Online is identifying, evaluating and publicising the European Evidence Base. The report reviews the availability and contents of this evidence base, focusing on the availability of research and key research gaps. It accompanies two online outputs:

- European Evidence Database. This now contains information about over 1000 studies, and is freely searchable online at www.eukidsonline.net
- Frequently Asked Questions: an interactive resource for researchers and research users regarding methodological best practice for studying children's use of internet and online technologies in diverse countries. See www.eukidsonline.net

Our recent search for evidence, conducted by teams from 33 countries, has resulted in over 1,200 studies being entered into the European Evidence Database. This is some 800 more than the previous total of nearly 400 identified in 2009. Of the 1,200 studies, network members have also produced summaries of the findings and included these in the searchable database.

Features of the available research

While initially most research focused only on children, increasingly research also addresses parents and teachers.

Most research exists in Belgium, Germany, Turkey and the UK. Least research exists in Iceland, Luxembourg, Latvia, Malta and Switzerland.

Most studies are conducted at a single time point in one country, making it difficult to compare findings over countries or over time.

For almost half (45%) of the studies, the findings are reported online; however, this makes it difficult for research users to find much of the research, especially when it has been conducted in other countries. Increasingly, research is published in peer-reviewed academic journals, resulting in a higher quality output overall. A fair proportion of research, however, is poorly conducted and poorly reported and disseminated.

Nine in ten studies are reported in just one language, and only four in ten are published in or include a summary in English. Language issues thus continue to impede the free circulation of knowledge.



About half (48%) of research concerns teenagers only (13+ years); 56% of research includes those aged 12 or under; only 12% of research addresses children under 7 years old.

Most studies focus on internet access and use. Over half also address online risks, but safety mediation (by parents and others) receives the least attention.

The biggest source of funding is public money, funding over four in ten studies.

Around two thirds of studies apply only quantitative methods and the proportion of studies that use only quantitative data has increased in later years. Some 60% of the quantitative studies use samples that are intended to be representative on the national level.

To illustrate the kinds of information contained in the European Evidence Database, the report highlights selected findings for children's use of internet and mobile technologies in the hope of encouraging research users to visit the database and search directly according to interest.

Key research gaps

Although the amount of research has more than doubled since EU Kids reviewed the field in 2009 the key gaps identified then continue to be pressing:

1. Uneven coverage by age, especially very young children, despite the rapid rise in their access to internet and mobile technologies.
2. Overwhelming focus on the fixed internet, to the neglect of mobile, convergent and emerging technologies.
3. Too little known of children's online activities and how they do or may reap the benefits.
4. Gaps in the evidence for exposure to online risk, how children respond and which are vulnerable to harm.

5. Gaps regarding the role of parents and teachers, along with other forms of safety mediation, and lack of knowledge of their effectiveness.
6. Gaps in certain countries. To some extent, it is possible to generalise across countries but for many purposes, national research will be needed.

1. INTRODUCTION

1.1. Context

The rapidity with which children and young people are gaining access to online, convergent, mobile and networked technologies is unprecedented in the history of technological innovation and diffusion. These changes pose parents, teachers and children the significant task of acquiring, learning how to use, and finding a purpose for the internet within their daily lives.

The benefits are to be found in relation to learning, participation, creativity and communication. Such online opportunities are also the focus of considerable public and private sector activity, with diverse and ambitious efforts underway in many countries to promote digital learning technologies in schools, e-governance initiatives, digital participation and digital literacy.

Along with the benefits, this access has brought exposure to a wide array of online risks, some of which are familiar in the offline world (e.g. bullying, pornography, sexual exploitation) and some of which are new, or at least substantially reconfigured in the lives of ordinary children (e.g. grooming, abuse of personal data and privacy, geo-location tracking, unwelcome forms of sexual messaging and harassment, the facilitation of self-harm).

Such rapid adoption of the internet and other online technologies poses policy makers, governments and industry the significant task of identifying the associated risks of internet use. They must also develop strategies and tools to ensure that any harm associated with such risks is appropriately minimised. In recent years, children have gained access first to dial-up, then broadband and mobile internet access at home, school and elsewhere, acquiring new skills and expertise as a result.

In coming years, the nature and use of the internet can be expected to change yet further, resulting in new research questions and challenges to be addressed if the opportunities are to outweigh the risks of internet use.

1.2. The policy agenda

The more children go online to gain the benefits, the more they may encounter risks, inadvertently and, sometimes, knowingly.¹ Indeed, children's everyday contexts of internet use combine experiences of opportunities and risks. Increased skills online also tend to increase rather than decrease the chances of both risks and opportunities. Online risks may be encountered when children are naïve or exploited; this especially seems to occur in 'new use, new risk' countries such as Estonia, Poland and Slovenia, where children are using the internet before an infrastructure of awareness-raising, parental understanding, regulation or safety protection has emerged.² However, children may also encounter risks when they are sophisticated or risk-taking internet users, familiar with technology and embedded in online social networks – as has been observed in such 'high use, high risk' countries as Norway, Netherlands and UK. Thus, promoting internet use without attention to safety may also promote online risk; conversely, measures to reduce risk may have

¹ Livingstone, S. and Helsper, E.J. (2010) Balancing opportunities and risks in teenagers' use of the internet: The role of online skills and internet self-efficacy. *New Media & Society*, 12(2): 309-329.

² O'Neill, B., Livingstone, S. and McLaughlin, S. (2011) *Final recommendations for policy, methodology and research*. <http://eprints.lse.ac.uk/39410/>



the unintended consequence of constraining online opportunities.

This leaves policy makers facing difficult questions in managing children's online experiences. The promotion of opportunities and digital skills must be integrated with rather than separate from the effort to manage children's online risk and safety. Celebrating young people's enterprise and enthusiasm while failing to engage with or support their online activities or their experience of associated online harm will surely fail to bring to fruition the great expectations that society holds out in general and for young users in particular.

In response to this challenge, the regulatory regime is developing fast, at times permitting little opportunity to weigh evidence, explore alternative solutions, allow domestic practices to settle, or wait for unintended consequences to unfold. Some regulatory practices attempt to manage conditions of accessibility, designing into websites and services enablers and constraints on what (or who) children (and others) can access and how. Examples include provision of filters, specification of child-friendly default settings, age verification systems, content rating and labelling, design standards or opt-in/opt-out points (e.g., for 'adult' content). Others focus on the conditions of children's internet use – building skills, advising parents, training teachers etc.

Recently, such initiatives have been brought together by the European Commission's Better Internet for Kids, as part of the European Digital Agenda.³ But many questions remain. How far should policy-makers resource efforts to improve online education, participation and creativity? Can youthful digital literacy be relied upon for judicious navigation of the internet? Can parents be relied upon to act to meet the specific needs of their child? Do available policy and technical tools work

³ See <http://ec.europa.eu/digital-agenda/en/creating-better-internet-kids>

effectively? Are online risks best addressed by particular agencies, national or international?

1.3. The EU Kids Online network

Since 2006, EU Kids Online has represented a focal point for new research findings on children's use of the internet and online technologies. Information about the national teams and key findings,⁴ together with a recent country by country report,⁵ are available on our website.

- In its first phase, the network identified and critically evaluated the findings of around 400 research studies, drawing substantive, methodological and policy-relevant conclusions.
- In its second phase, the network surveyed children and parents across Europe in a major 25 country, in-home survey of a representative sample of 25,142 children.⁶
- Due to be completed at the end of 2014, the third phase of EU Kids Online is building on the success of these two previous projects, as well as on the longer tradition of research on children's media use, in order to deepen and broaden its analysis of the changing array of opportunities, risks and safety dimensions of children's online experiences.

The past decade of technological change has been accompanied by a decade of research seeking to understand the nature of these changes as they shape everyday life, tracing their social consequences within the home, for parents and children, for the peer group, at school, and in the wider society. However, technological innovations will continue to develop and social practices among youth will continue to creatively adjust around them; policy initiatives at all levels from local to international will also continue to develop.

⁴ See country team information at <http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/ParticipatingCountries/Home.aspx>

⁵ See *National Perspectives* at <http://eprints.lse.ac.uk/46878/>

⁶ See *Full Findings* at <http://eprints.lse.ac.uk/33731/>

The EU Kids Online network now encompasses 33 countries, including all EC member states:

Table 1: Countries in EU Kids Online

Country	Two letter country code
Austria	AT
Belgium	BE
Bulgaria	BG
Croatia	HR
Cyprus	CY
Czech Republic	CZ
Denmark	DK
Estonia	EE
Finland	FI
France	FR
Germany	DE
Greece	EL
Hungary	HU
Iceland	IS
Ireland	IE
Italy	IT
Latvia	LV
Lithuania	LT
Luxembourg	LU
Malta	MT
Netherlands	NL
Norway	NO
Poland	PL
Portugal	PT
Romania	RO
Russia	RU
Slovakia	SK
Slovenia	SI
Spain	ES
Sweden	SE
Switzerland	CH
Turkey	TR
United Kingdom	UK

Sustaining a critical research overview is vital to underpin evidence-based policy. This must encompass the activities and outputs of the rapidly growing research community now investigating issues concerning children and young people’s internet and mobile technology use. There are new phenomena gaining research attention (e.g. online addiction), innovative methods emerging (e.g. online methods), specialist groups forming (e.g. around mobile use, digital gaming) and an increasingly global scope to a research enterprise which, until recently, was largely Northern European and North American.

A major conclusion in the EU Kids Online I project was that a robust, comparable and up to date portrait of online risks encountered by European children is lacking. The available evidence base regarding users and their needs then contained serious gaps; the methods used were often non-comparable across projects or countries; and the available research dates quickly, given the pace of both technological and social change. The EU Kids Online II project was organised directly to address the need for comparable research findings across countries on the basis of which recommendations for child safety, media literacy and awareness could be formulated.

Keeping up with, and critically evaluating, the latest findings and arguments is, and remains, therefore, a substantial task. It cannot be completed as a one-off step prior to policy development. Even having conducted a major pan-European survey, the task of constructing an evidence base adequate to informing policy is not over. Rather, the evidence base requires continual updating and rethinking, drawing on the expertise of researchers from multiple disciplines and countries, developed in active dialogue with educators, awareness raisers, child welfare organisations, governments and industry. Also, the research

methods and expertise of those who conduct and use research needs further improvement.

1.4. Reviewing the evidence

In recent years, the number of studies on children and internet and mobile technologies has been growing steadily around the world. However, there have been problematic gaps in the evidence base, and research has been unevenly distributed across countries. As research continues to accumulate, it is important to maintain an overall picture of the evidence base. EU Kids Online is meeting this challenge by identifying, evaluating and publicising the European Evidence Base. Specific tasks are:

- To identify recent evidence about children's use of new media across Europe, in each member state and other participating countries, all coded and entered in an online public database.
- To evaluate the quality of the evidence base, promoting high quality findings, identifying significant weaknesses in the evidence base, and reporting on trends in three annual reviews.
- To reflect on methodological good practice for research on children's internet use, including lessons from EU Kids Online II, and promote these as Frequently Asked Questions online.

These tasks resulted in three outputs:

- European Evidence Database. This now contains information about over 1000 studies, and is freely searchable online at <http://www2.lse.ac.uk/media@lse/research/EUKidsOnline/DB/home.aspx>
- Frequently Asked Questions: an interactive resource for researchers and research users regarding methodological best practice for studying children's use of internet and online technologies in diverse countries. See www.eukidsonline.net
- Reports reviewing the availability and contents of this evidence base. The present report is the first iteration of this review, focusing on the availability of research and gaps in the evidence base. The second report (due in Autumn 2014) will update this report and focus in more detail on findings and implications.

By updating and critically evaluating the availability of research, the present report aims to pinpoint strengths and gaps in the existing evidence base. The purpose is to inform the developing research agenda, identifying significant advances and drawing out methodological implications. By updating and extending the evidence base, putting it online, including summaries of recent findings, and expanding coverage to include all EU member states and more, we hope to promote the identification and value of good quality research conducted in Europe and beyond. Not only can we thus make research findings (often published in different languages) more available but it is also easier to identify important research gaps.

To complete these tasks, the above objectives were operationalized into a set of procedures and carried out by all national teams participating in the EU Kids Online network:

- To locate and code empirical reports of children's use of internet and mobile technologies in each participating country.
- To evaluate the quality of the research findings against agreed quality criteria derived from prior work on methodological good practices.⁷
- To provide a succinct English-language summary of the findings of recent studies.
- To construct a searchable database of available evidence and put this online.
- Report on the available research findings and key gaps in the evidence base.
- Update and expand EU Kids Online methodological good practice guide, in the form of updated FAQs.⁸

⁷ See Lobe, B. et al. (2007) *Researching children's experiences online across countries: Issues and problems in methodology*. <http://eprints.lse.ac.uk/2856/>

⁸ For the previous version of these FAQs, see Lobe, B., et al. (eds) (2008) *Best practice research guide: How to research children and online technologies in comparative perspective*. <http://eprints.lse.ac.uk/21658/>

1.5. Identifying research

Ideally, one could identify all available research on children's use of internet and mobile technologies in Europe. "Research" however can be defined in various ways, and before judging the availability of research it is necessary to define research:

'In the social sciences, the scientific method refers to research methodologies that pursue verifiable knowledge through the analysis of empirical data.'⁹

As Lobe et al add,

'In other words, research is designed to answer questions. Its conduct should conform to publicly agreed standards regarding ethics, integrity, objectivity, and so forth. In addition, research builds on the cumulative wisdom of a research community, this guiding the decisions to be taken at all stages of the research process, from framing the question, selecting the method, identifying the sample, interpreting the findings and reporting the conclusions'.¹⁰

Within most scientific disciplines, research is understood as involving the systematic collection of data, led by a theoretical framework, which are then analysed and interpreted according to standards of quality, independence and relevance. To ensure these standards, academia generally institutes a strong process of independent (blind) peer review in order to evaluate research findings before publication. The quality of the body of research is an important issue for supporting evidence-based policy. Single studies hardly provide a solid basis for formulating policy, and ideally there would be a robust body of findings pointing in a similar direction if it is to provide the basis for significant policy. However, it must be acknowledged that debates exist regarding the methods, theories and standards of research, so the reader should apply their own

critical expertise when approaching the literature reviewed in this report.

To determine how much research is available, we could count either studies (i.e. independently conducted research projects) or outputs (i.e. publications, presentations, reports). An advantage of counting outputs is that it provides a good starting point for the process of summarizing research findings. However, the more several outputs may derive from the same research project (and hence the same source of data), the less this approach would reflect the availability of research.¹¹

Counting studies overcomes some of the problems associated with counting the number of outputs but has its own drawbacks. Many studies have multiple stages of data collection and many also have multiple outputs. Merely counting outputs could underestimate the research activity while also overestimating the availability of research.¹²

The effort undertaken by the EU Kids Online network between 2006 to 2009 aimed at identifying all available research on children's access to and use of the internet and related online and mobile technologies, defined the unit of analysis as being 'an empirical research project (not a publication) conducted in Europe'.¹³ By 2009, we had found and coded nearly 400 studies.¹⁴

⁹ Calhoun, C. (2002). *Dictionary of the Social Sciences*. Oxford: Oxford University Press.

¹⁰ Lobe, B. et al. (2007) *Researching children's experiences online across countries: Issues and problems in methodology*. <http://eprints.lse.ac.uk/2856/>

¹¹ Taking this to the extreme, it is possible to imagine that all published research in Europe was drawing on a single study. This single study might of course be of very high quality but merely counting outputs would clearly overestimate the amount of research available.

¹² Taking this to the extreme, it would be possible to imagine numerous studies being carried out but with none of the findings published or a large number of studies where the quality of the data collected is poor.

¹³ Staksrud, E., Livingstone, S., and Haddon, L. (2009) *What Do We Know about Children's Use of Online Technologies? A Report on Data Availability and Research Gaps in Europe*. 2nd edition <http://eprints.lse.ac.uk/24367/>

¹⁴ The focus then and now was on studies where the findings are publicly available. In other words there has to be at least one publication from that study and that

Unit of analysis: For the purpose of reporting the availability of research the unit of analysis is the study – defined as a point of data collection within a country.¹⁵ Thus:

- A project conducted in two countries is counted as two studies in the table.
- A project that has both a quantitative and a qualitative component is counted as two studies.
- A project conducted in one year and then repeated next year is counted as two studies.

Minimum requirements: The minimum definition of an original empirical research project, to permit entry into the European Evidence Database, was that a report is available (paper or electronic) that details the methodology used (with sufficient information to code the project and to evaluate it as competent and valuable) and the data/findings obtained (with sufficient information to permit basic reporting of relevant statistics, observations or other findings). This would include all academic publications, most conference presentations, most commercial or public policy reports, some market research surveys (where often only the executive summary or brief statement of findings is available) and a few press releases (though some can include detailed statistics plus a note on survey methodology). In addition, the study must:

- **Contain information on children** (0-17 years old). Even though the EU Kids Online project defines children as being those who are under 18 years old, many studies that are not focused on children include also individuals in that age group.
- **Make references to the 'online/mobile'.** Sometimes data on for example use of online technologies is collected as a part of a study which has a focus on other things.

publication must include sufficient methodological details to evaluate its quality.

¹⁵ This differs slightly from the approach used in the first phase of the *EU Kids Online* project but comparability is still feasible.

- **Be part of the evidence base.** It has to be recognised that the evidence base is much broader than just what is published in peer reviewed journals. In fact much valuable information is available through reports. Therefore it was thought important to search for studies both within and outside of academia.
- **Use a clear methodology.** As the aim of the collection of studies was not only to determine how much research is available but also to expand the evidence base by providing summaries of findings it was important to be able to evaluate the quality of the findings to some extent. For this purpose it was important that there was clear information on the methods used (e.g. definition of the sample and the number of children interviewed).
- **Be accessible.** The findings of the study had to be publicly available and there had to be sufficient methodological details to evaluate its quality.
- **Be recent.** Given the rapid development of online services and devices and the fact that the period up to 2008 had been included in previous efforts by the EU Kids Online network it was decided to focus on data collected in 2006 or later.

It was clear from the beginning that there would be more studies in some countries than in others. In countries where there is very little relevant research it is obviously easier to reach the goal of including all research. In countries where a large body of research has been conducted, national teams might have to have been more selective, focusing on the most recent or the most relevant work. The idea however was to err on the side of inclusion.

A special emphasis was placed on finding studies which addressed any of the following topics:

- **Children and the internet/online world** (including online gaming/mobile phones to go online). This would include information about children's access and usage, their competencies, their online interests and activities, their media literacy when interpreting what they find online, their own interests, concerns and frustrations when online, their strategies for finding things, etc. It also includes learning, games, identity play, advice,

participation, social networking. If many studies are available an emphasis was to be put on notable/recent studies. As this is a topic covered in most studies the important thing was to ensure this area is covered for each country, though not necessarily including all such studies.

- **Risks encountered by children online** (as well as research addressing opportunities open up to them), together with information on safety strategies, awareness and responses to risk. Risks were to be defined broadly, to include exposure to illegal content, online friends, contact with strangers (paedophiles, grooming in chat rooms), exposure to harmful or offensive content, encountering sexual/violent/racist/hate material, advertising, commercial exploitation, misinformation, giving out personal information, invasions of privacy and unwelcome contact (spam, viruses, etc.), bullying, downloading (ill/legal), user-generated content, use of challenging sites (suicide, anorexia, drugs, etc.) and cyber-stalking and harassment. Coverage of this area was to be comprehensive, with nothing left out.
- **Practices of regulation of online technologies**, from the point of view of teachers, parents, children, carer's libraries or others responsible for children. This should include research on adults' knowledge of children's practices online, styles of intervention/regulation of children's use, children's strategies for evading monitoring, or being able to avoid filters, find ways around restrictions etc. It also includes research on media/information literacy, safety/awareness of online risks, effectiveness of filters or other technical means of managing the online environment, passwords, privacy, walled gardens, etc. Coverage of this topic was to be comprehensive, with nothing left out
- **Parents' internet experience** e.g. what are their online competencies, attitudes to the internet, concerns about the internet. This should include notable recent studies of the adult population as a whole, especially where specific information on parents is lacking.
- **Children's use of other technologies** (e.g. TV, PC, mobile phone), in order to put their online activities into context, where there is a notable recent national study, or where online access and use is compared with other media

access and use. As this is a widely researched topic the most important thing was to ensure this area is covered for each country, though not necessarily including all such studies.

The studies identified in this way were coded in a simple way to produce an overview of the available research. The main aim was to find out what has been studied, where and how. Additionally, findings were summarised and reported for the more recent studies identified (approximately 500 in all).

The coding frame is provided in Annex3

1.6. This report

The first aim of this report presents is to evaluate the availability of data on children's use of the internet and mobile technologies. The second is to describe the development of the research field. The third is to demonstrate the potential of the available body of research made accessible through the online database.

To describe the development of the research field, the report builds on work published in 2009 by the EU Kids Online network.¹⁶ That report identified five significant gaps in the evidence base. The present report will examine whether there is any indication of developments towards these being addressed by subsequent research. **In 2009, we had identified the key gaps as the following:**

- **Uneven coverage by age**
- **Overwhelming focus on the fixed internet**
- **Little known of children's online activities**
- **Gaps in the evidence for exposure to online risk and how children respond to this**
- **Gaps regarding the role of parents and teachers**

¹⁶ Staksrud, E., Livingstone, S., and Haddon, L. (2009) *What Do We Know about Children's Use of Online Technologies? A Report on Data Availability and Research Gaps in Europe*. 2nd edition. See <http://eprints.lse.ac.uk/24367/>



For the purpose of demonstrating the potential of systematically building on the existing body of research, this report uses the summaries of findings made by the network members and which are part of the searchable online database. These are both contrasted with the survey conducted in 25 European countries in 2010¹⁷ and summarized further to provide an overview of selected topics.

¹⁷ Livingstone, S., Haddon, L., Görzig, A., and Ólafsson, K. (2011) *EU Kids Online II: Final Report*. See <http://eprints.lse.ac.uk/39351/> See also *Full Findings* at <http://eprints.lse.ac.uk/33731/>

2. AVAILABILITY OF RESEARCH

The search for studies conducted in 2012 yielded more than 800 additional studies, bringing **the total number of studies in the European evidence database to more than 1,200** (compared with the nearly 400 studies identified in 2009). Of these findings have been produced for nearly half of the studies and included in the searchable database.

This suggests a considerable research effort in recent years, and represents a very substantial body of literature. However, limitations and gaps persist.

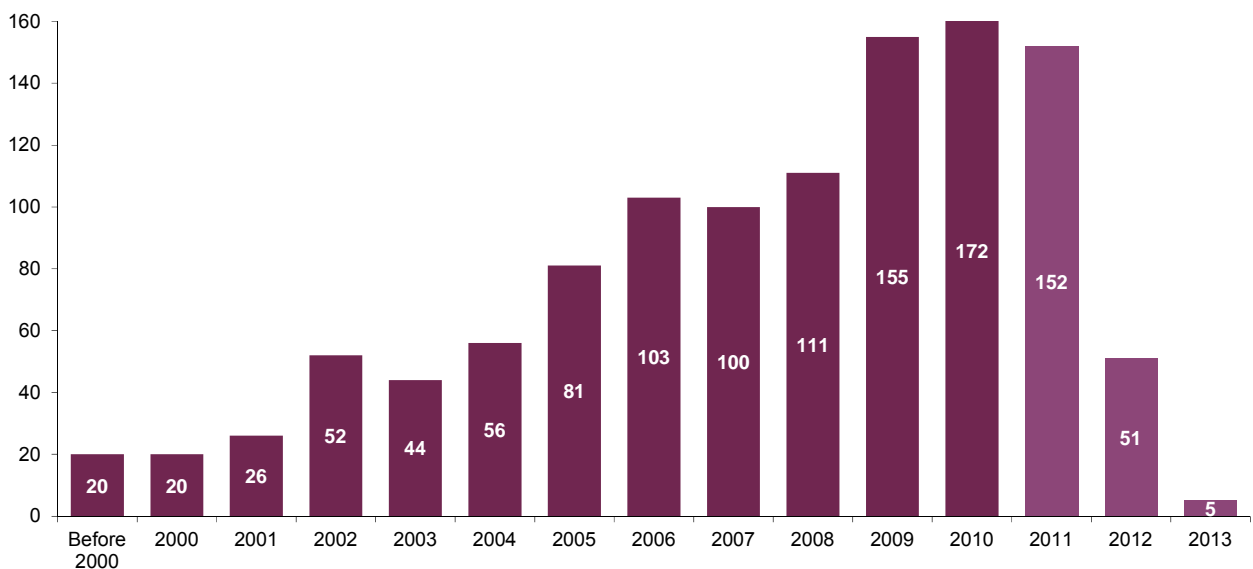
It should be emphasised that studies focused on children and the internet are very varied in their nature. Some studies are small in scale, producing a single report; others are substantial, resulting in a series of publications. In many studies, the majority

in our database, children and the internet are the central focus, but in some, they are a minor part of the research. For example, surveys of public adoption of media or technology or consumer goods include some questions about internet access and use, but may not include much detail.

2.1. How much research is available?

Figure 1 shows the number of studies by the year in which data collection was started. The number of studies found by the network clearly indicates that research on children and internet and mobile technologies is increasing year by year.

Figure 1: How many studies on children and the internet/mobile technologies are available in Europe?



Note: Studies are coded according to the year when data collection was started.

From 2000 until 2010, the average increase in the number of studies conducted from one year to the next is 25 to 30 per cent.

Some of the increase observed might be due to the fact that the EU Kids Online network has grown in size (both in countries and persons involved).¹⁸

The drop in numbers from 2010 to 2011 and more dramatically to 2012 is by no means a sign of a reduction in research activity. Rather, it is a sign of the time taken from data collection to the publication of findings.¹⁹

Figure 2 shows the percentage of studies that include information on particular groups or study participants.²⁰ **Just over half of the studies (56%) focus on children only and an additional 10% focus on children and parents.**

In all, 85% of studies include or concern children. The inclusion of parents is greatest in studies which include the youngest age group (children aged 0-5 years), where 54% of studies include parents as well. When the children participating in the study are older, parents are less likely to be included in the research: for studies that include teenagers aged 15-17 years, only 16% of studies include parents.²¹

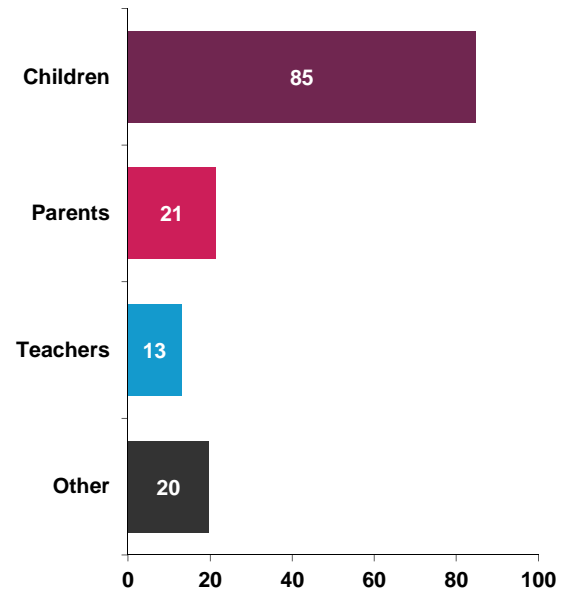
¹⁸ The search for studies carried out previously (in 2006 and 2008) was not limited to countries that were at the time participating in *EU Kids Online* and therefore the increase in the number of studies identified cannot be attributed just to an increase in the number of countries in the network. Also the recent search for studies in 2012 was not limited to the time since 2009 and in fact the network found more than 200 additional studies for the period from 2000 to 2008.

¹⁹ A similar drop was observed in the 2009 report, where 2006 then saw the highest number of studies and 2007 appeared to deliver only two thirds of that number.

²⁰ Note that even though a group has been included in a study, it does not necessarily mean that individuals from that group have been interviewed or observed directly. For example, children might be asked about what their parents or teachers do and parents might be asked about their children's online practices.

²¹ Teachers are most likely to be included in studies where children aged 6-8 years are involved; in such cases 14% of the studies include teachers (though this does not

Figure 2: Who is the focus of studies? (%)

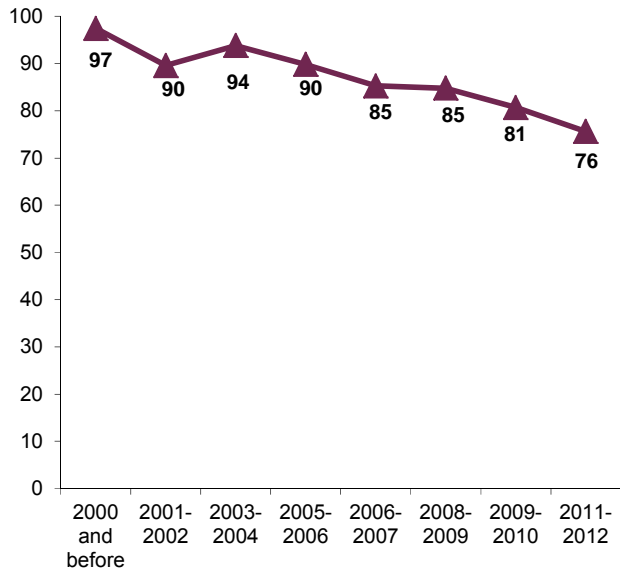


Note: Some studies focus on more than one group, hence the bars sum to more than 100%.

Interestingly, as the number of studies has grown over years, they have broadened to include a wider focus than just children (see Figure 3). Out of the 39 studies identified for the years from before 2000 and until 2001 almost all are coded as focusing primarily on children. Over time, researchers have begun to include a focus also on parents, teachers and others, as well as continuing to research children directly.

necessarily mean that the teachers were interviewed themselves).

Figure 3: Studies focused just on children, by year (%)



Note: The number of studies in each two year period ranges from 39 in the years 2000 – 2001 to 321 in the years 2009 – 2010.

2.2. In which countries is research available?

Studies on children and internet and mobile technologies have been found in all of the 33 countries participating in the EU Kids Online network. Table 2 shows that the number of studies varies considerably across countries.

There are many reasons why more research exists in some countries than others. The amount of research conducted tends to reflect the population size (and, hence, number of research institutions in a country), the length of time in which the internet has become widely available and established in a country, the available funding sources, media attention, and so forth.²²

²² Stald, G. and Haddon, L. (eds) (2008) *Cross-cultural contexts of research: Factors influencing the study of children and the internet in Europe*. <http://eprints.lse.ac.uk/24380/>

Table 2: Studies available, by country?

	Single country studies		All studies (including multi-country studies)
	Dating from 2008 or earlier	All single country studies	
AT	23	56	70
BE	37	61	80
BG	5	12	21
CH	0	3	9
CY	3	14	19
CZ	13	38	47
DE	83	118	139
DK	28	38	61
EE	18	40	58
EL	41	66	80
ES	18	58	77
FI	29	59	69
FR	10	19	44
HR	2	3	5
HU	4	11	17
IE	11	17	27
IS	2	4	13
IT	25	45	69
LT	0	5	14
LU	0	2	8
LV	0	0	7
MT	0	0	6
NL	30	35	47
NO	16	31	47
PL	5	5	17
PT	29	49	66
RO	15	20	31
RU	7	33	37
SE	30	49	73
SI	6	14	25
SK	3	26	32
TR	17	85	89
UK	64	99	122
ALL	575	1117	56

Note: The following countries did not participate in the first EU Kids Online project: CH, FI, HR, HU, LT, LU, LV, MT, RU, TR

In countries where few studies were found, master's and doctoral theses are given more weight. Also, multi-national studies (that include a particular country) represent a greater proportion of overall studies in those countries where less national research is conducted.

Research conducted outside Europe is sometimes influential within Europe, and it also helps to provide an 'outside' view, especially when determining what is specifically European and what is more general to children's internet use. Thus, although not within the remit of the evidence database, references to such research are collected as part of the on-going review of the literature. Thus a few studies included in the evidence database, include or are from countries outside of Europe. These studies can only be indicative as the aim was not to be comprehensive for countries other than the 33 included in the EU Kids Online network. An example is the research conducted by Pew Internet in the US, valuable for its high quality, timely and useful surveys of youthful internet use. Their findings are widely cited in European policy debates.

2.3. Is there scope to compare over countries or time?

Table 2 also shows that the vast majority of studies found are single country studies. On average, some 5% of studies include more than one country – most of those (55%) include two and four countries.

There is no obvious time trend, either growth or decline, in the number of multi-country studies conducted. For the record year of 2010 only nine studies included more than one country, 6% of the total number of studies. Moreover the number of countries included in multi-country studies does not seem to be increasing.

As the EU Kids Online network knows only too well, there are numerous obstacles to carrying out cross

national comparative research within the field of media studies in general. One is the rapid development of the research subject making it difficult to develop measurements that can be used across countries or over time. The 25 country survey carried out by the EU Kids Online network in 2010 was a serious attempt to strengthen the basis of future comparative research. Having established a robust benchmark, it is vital that further surveys are conducted to measure and evaluate changes in the children's engagement with online and mobile technologies in Europe.

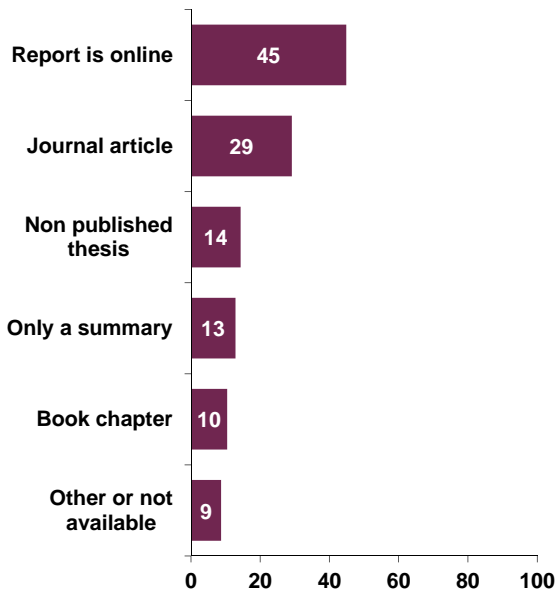
2.4. Are research findings publicly available?

For almost half (45%) of the studies, the findings are reported online (see Figure 4). Perhaps counter intuitively, this proportion is higher for the older studies than for the more recent ones.²³ The accessibility of findings online may reflect an effort by researchers to make findings available as soon as possible after data collection – important in this fast-changing field.

The number of studies whose findings have been published in journals has also increased over the years. From 2000 to 2006, fewer than 20% of studies were published in a journal article; from 2007 to 2012 the average rose above 30%. This is important since academic publications, especially in journals, generally include a formal process of anonymous peer-review and editorial scrutiny and guidance.

²³ From 2000 to 2006 the proportion of studies where findings are to be found in an online report is between 50% and 65%. From 2007 however the proportion is always below 50% and down to 37% in 2011. In part this might reflect the search process whereby national teams used search engines to find studies. However, this was only one of several strategies so it appears that a considerable amount of information is accessible online.

Figure 4: How are study findings made available? (%)



Note: Some studies have more than one publication, hence the bars sum to more than 100%.

One concern is that many, though not all, reports are largely descriptive, valuable as a timely snapshot of online use, but lacking the theoretical framework or critical evaluation of research required for a deeper analysis or interpretation of findings.

It is also of concern that for 13% of the empirical studies only a summary is available, thus omitting important information needed to evaluate the research and understand its findings. These included summaries in which the number of respondents or the date of fieldwork was missing. Even in some full reports, key information was missing – who funded the study, for example, or the mode of survey administration (e.g. telephone, face-to-face or other). Sometimes reports do not specify the age of the participants, but just say that they were from primary schools or secondary schools (which can mean different ages in different countries).

2.5. What language is research published in?

Generally, the norm is that findings are either published in the language of the country where the study has been conducted or in English [see Table 3]: **39% of studies have at least part of the findings published in English** (in some cases this might be only a summary). English is also the most common language for multi-country studies with 57% of the 56 studies being reported only or also in English.

Most studies (90%) are published in just one language, meaning that it is a genuine challenge for researchers and research users to grasp the overall contribution of this multi-lingual evidence base.

Language matters both so that research users can access findings and also so that researchers can communicate among themselves, comparing findings and learning from each other.

The majority of studies (62%) published in peer-reviewed journals are available in English. The increase in the publication of findings in journal articles will thus not only have contributed to a higher quality in the available findings (following the editorial process) but also to a wider sharing of information within the research community.

Table 3: Studies of children and internet and mobile technologies, by language of findings

	In all studies	In multi country studies
Bulgarian	12	
Catalan	1	
Croatian	3	
Czech	25	
Danish	35	3
Dutch	28	1
English	451	32
Estonian	39	1
Finnish	55	1
French	30	3
German	187	6
Greek	55	1
Hungarian	10	
Icelandic	5	3
Italian	45	3
Kurdish	0	
Lithuanian	0	
Maltese	0	
Norwegian	38	7
Polish	3	
Portuguese	46	2
Romanian	22	6
Russian	32	
Slovak	26	
Slovene	14	
Spanish	57	
Swedish	37	3
Turkish	39	

Note: Spanish here means Castilian.

3. PATTERNS OF RESEARCH

Which children, and which topics, have been studied? What methods have been used and how are studies funded? In this chapter we will turn our attention to the children that are being studied, the topics, research methods and funding. This can be influenced by various factors. Clearly funding is important but has not been shown to influence which topics are being studied.²⁴ Policy, both on the national and international level can, however, have an impact in directing research towards certain areas as can be the case with public discourses and even particular events.

3.1. Age of children

For the purpose of collecting studies children were defined as all individuals under the age of 18 years, following the definition used by the EC. This adopts the legal definition of 'minors' – those under 18 years old, though media provision and regulation often define children as those younger than 12 or 15, while child protection services often consider that youthful 'vulnerability' may extend into young adulthood.

Figure 5 shows the number of studies by age of the children included. The majority of research on children's use of internet and mobile technologies is conducted on teenagers. Even in 2007 it was noted as problematic that most research concerns teenagers despite children of primary school age gaining access to the internet leading Staksrud, Livingstone and Haddon²⁵ to point out that:

²⁴ Stald, G. and Haddon, L. (eds) (2008) *Cross-cultural contexts of research: Factors influencing the study of children and the internet in Europe*.
<http://eprints.lse.ac.uk/24380/>

²⁵ Staksrud, Livingstone and Haddon (2007, p11).

'increasing the body of research on children younger than 12 is a priority, since their activities may challenge their maturity to cope with unanticipated risk'.

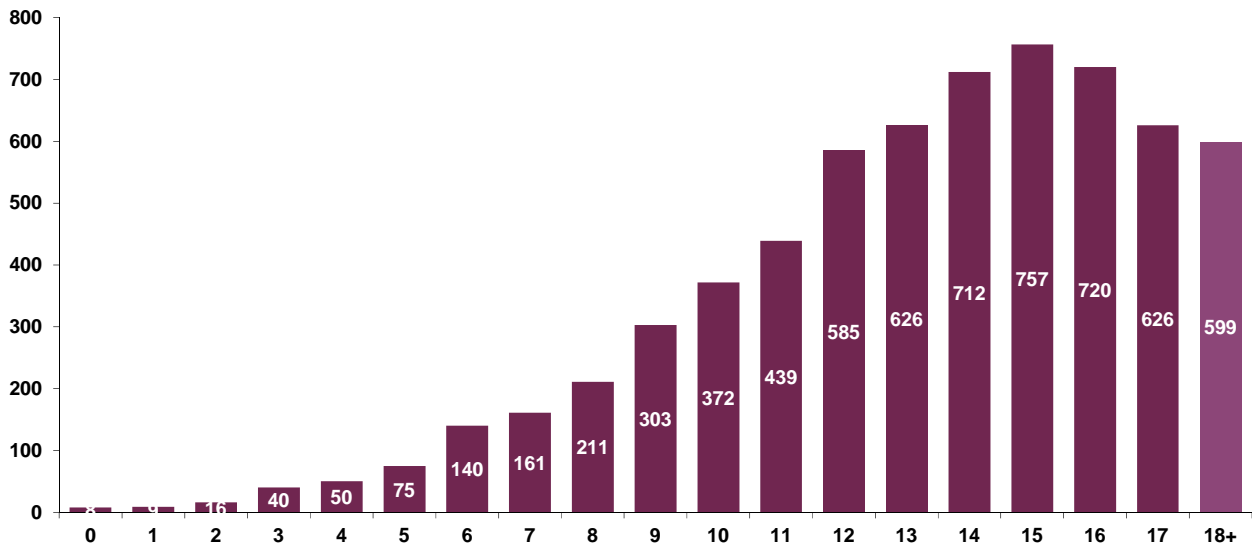
This challenge has not been taken up by the research community. **Only 6% of studies include children aged 5 or younger while 70% of studies include teenagers aged 15-17 years.** There are, now, indeed more studies on young children but this is because of the increased number of studies overall. In other words, in recent years roughly the same proportion of studies includes children aged 5 and younger as in earlier years.

Thus, younger children have not received more attention despite our highlighting this as a key gap in our 2009 review of the evidence base. But the age when children in Europe start to use the internet has been dropping steadily. The *EU Kids Online* study of 2010 found that children aged 15-16 years said on average that they started using the internet when they were 11 years old. The 9-10 year old children said that they were around 7 years old when they started to use the internet and these figures were on average lower in Northern and Western Europe.

Possibly, the methodological challenges seem too difficult: it is to facilitate researchers meeting such challenges that we have produced our Frequently Asked Questions which contain considerable guidance on research with young children.

The large number of studies on teenagers is perhaps not surprisingly given the frequently expressed concern about the relationship of this age-category to the internet. In addition, it is relatively easy to recruit teenagers to take part in research compared to both younger children and older age groups.

Figure 5: Number of studies by age of child studied



Note: The studies are multi coded and most studies cover more than one age group. Even though a particular age-group has been included in a study it does not necessarily mean that individuals from that group have been interviewed in person.

At one end of the age scale, typical data collection strategies such as self-completion paper questionnaires distributed to whole classes are not an option for very young children whose reading and writing skills are not fully developed. At the other end of the age scale, once young people have left school, it becomes quite problematic to get access to them to recruit them for research.

Thus the inclusion or exclusion of different age groups can occur for various reasons. Research conducted on the adult population often includes older teenagers because they are more 'researchable' (i.e. reliable respondents, without necessitating different methods or demanding more rigorous ethical procedures). Other research targets children and young people because they are the focus of interest. Educational research (including that focused on the use of information technologies) may target primary and/or secondary school pupils.

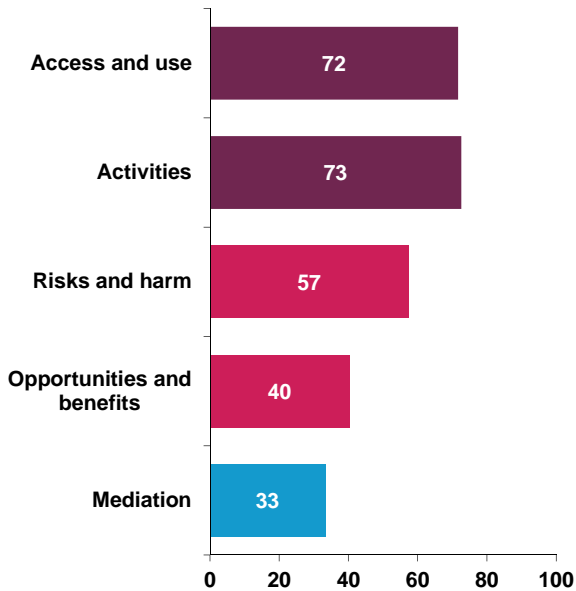
3.2. Topics researched

Based on the first round of studies collected by the EU Kids Online network the topics addressed were coded into 16 groups. In addition the studies were coded into nine topics related to parents.²⁶ Building on subsequent work by the EU Kids Online network and the theoretical framework set out by the EU Kids Online network in its 2010 study of children's internet use²⁷ it was decided to simplify the coding to five main topics: access and use; activities; risks and harm; opportunities and benefits; parental and safety mediation. This classification was applied to the 800 or so additional studies collected in 2012 (see Figure 6).

²⁶ See Staksrud, Livingstone, Haddon & Ólafsson (2009).

²⁷ Livingstone, Haddon, Görzig and Ólafsson (2011).

Figure 6: Studies conducted, by topic (%)



Note: The studies are multi-coded and most studies cover more than one topic, hence the bars sum to more than 100%.

The results are roughly in line with what has been observed previously. Most studies include significant information on access and use and on activities. More than half of the studies (57%) focus on risks, there is less focus (40%) on opportunities and benefits and mediation receives the least attention.

This ordering of topics is in many ways to be expected. The majority of studies found do indeed focus on children and the internet and mobile technologies. But in some studies they are a minor part of research that has a much broader scope. Some studies cover a range of different media or focus on another technology but include data on internet use. Some studies focus on children and youth in general but include information on media use, perhaps intended as background information but still providing valuable information. This has a consequence for the above figures on the distribution of topics researched.

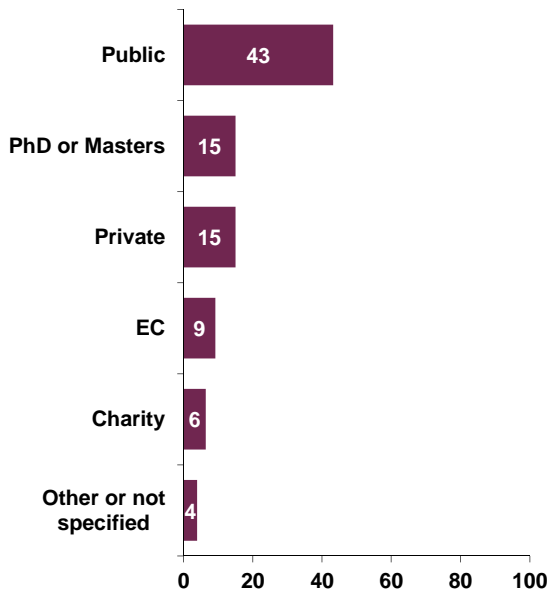
3.3. Funding and origins of research

The source of funding may shape the research agenda and the specific questions addressed.²⁸ It may also influence the nature of the research. Commercial market research often emphasises the latest figures, providing a descriptive snapshot of a current situation without a framework for understanding it. Research council funders expect a theoretical framework, and also require research to be accountable and accessible (e.g. researchers should supply the data/questionnaires. on request). Commercial/NGO research might focus on the immediate policy context whereas academic research should take a longer view.

Analysis carried out after previous collection efforts distinguished between 15 different sources of funding. For this report a simplified version with six categories is used (see Figure 7). The pattern that emerges is similar, but with national public funding being either partially or completely behind 43% of studies. The efforts of doctoral and master’s students are also an important contribution to the research field

²⁸ Stald, G. and Haddon, L. (eds) (2008) *Cross-cultural contexts of research: Factors influencing the study of children and the internet in Europe*. <http://eprints.lse.ac.uk/24380/>

Figure 7: Studies conducted, by funding source (%)



Note: The studies are multi-coded and some studies receive funding from more than one source, hence the bars sum to more than 100%.

3.4. Research methods

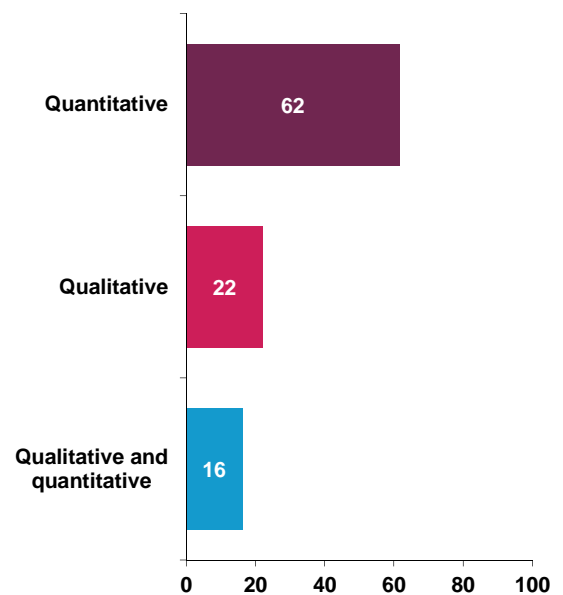
Quantitative and qualitative research methodologies make different assumptions, use different methods, rely on different criteria for reliability and validity, and produce different kinds of findings. Broadly, quantitative research makes a claim to be representative of the population, it asserts that it uses reliable and valid measuring tools and promises statistical analysis of relationships between variables. Qualitative research does not claim to be representative in the same way as quantitative research does, but instead seeks to capture the diversity of a phenomenon. It does not work with numbers but works with observations and verbal data, seeking richness in the analysis and providing a voice to those being researched.

For quite a few studies, often where only a summary is available, it was not possible to determine many

details of the methods used. For the most part, methods could be only classified as either qualitative or quantitative and some studies use a combination of both (see Figure 8).

Around two thirds of studies apply only quantitative methods and the proportion of studies that use only quantitative data has increased in later years. Some 60% of the quantitative studies use samples that are intended to be representative on the national level.

Figure 8: Studies conducted, by method (%)



Although crucial to the evaluation of the quality of any study, information on sampling and sample size are often left out of reports or summaries. Based on those studies where sample size was available the median size for quantitative studies was around 850 meaning that half of the studies had a smaller sample. For the qualitative studies the median sample size was 24 but here it should be kept in mind that many such studies employ group interviews which increases the number of individuals involved.

4. USING THE EVIDENCE DATABASE

In addition to finding studies on children and internet and mobile technologies, the EU Kids Online network set itself the ambitious goal of summarising the key findings of those studies. Given the large number of studies that have been identified it was decided to focus (at least to begin with) on studies that have been published most recently or in the years from 2009 to 2012.

From each of these studies the national teams have worked to provide a summary of between 1 and 7 bullet points. Both the list of studies and these short summaries are available in the searchable European evidence database (available online at: www.eukidsonline.net).

The aim of this effort is to make research more available. As already noted, results from many of the studies have been published only in the respective national language and by providing summaries of findings in English it is hoped that researchers will more easily find studies relevant to their research topics.

We cannot here provide a comprehensive overview of the findings of all studies conducted since 2009 based only on the summaries provided. To explore and demonstrate the potential of the European evidence database now online at www.eukidsonline.net, we use findings from the *EU Kids Online* survey of 2010 as a point of departure.

This is by far the most comprehensive study of children's internet use carried out in Europe, both in terms of the countries included and the topics covered. The study investigated five key areas of children's internet use; access and use, activities, risks and harm, opportunities and benefits and finally mediation. This chapter illustrates the value of the European evidence database by highlighting newly added studies that confirm, complement or

contradict key findings from the 2010 survey.²⁹ Our selection of new findings to highlight, in what follows, is very partial, our purpose being to encourage readers to check out the online database for themselves. Thus we illustrate the kinds of information it contains in relation to key themes regarding children's use of internet and mobile technologies, as well as showing what it contains for an exemplar concept (excessive internet use), technology (mobile phones) and country (Austria). We hope this encourages research users to visit the database and search directly according to interest.

4.1. Access and use

Internet use, and the use of digital media in general, is thoroughly embedded in children's daily lives with the majority of children going online every day or almost every day. The trend throughout Europe has been for children to start using the internet at an ever younger age. Internet access has also been diversifying with access via mobile devices becoming more common. Still, the most common place of use is the children's home.

Given the fact that studies including very young children are quite rare and the clear hypothesis that internet use starts at an ever younger age it is interesting to look at the summary of findings³⁰ from a study (in the evidence database) carried out in Finland in 2010 with a nationally representative

²⁹ See Livingstone, S., Haddon, L., Görzig, A. and Ólafsson, K. (2011) *Risks and safety on the internet: The perspective of European children: Full findings*. <http://eprints.lse.ac.uk/33731>, summarised on p.5-9.

³⁰ Summary by Laura Järvinen and Juulia Andersson.

sample of 743 families with children aged 0-8 years (see Kotilainen, 2011).³¹

- Children's media use begins at a very early age. A majority of 0-2 year olds listened to books, radio, and sound recordings.
- One-year olds watch TV and visual recordings daily and they mainly use media in the company of their parents or other adults.
- At the age of 3-4, a child's individual taste in media begins to develop, and the tastes of girls and boys begin to diverge.
- The greatest difference between 7-8 year olds and younger age groups is the dramatic rise in the use of digital games, the internet and mobile phones.
- The most useful forms of collecting data turned out to be observation at home (0-3 year olds), and interviews (over 4 year olds), including questionnaire surveys conducted by peers.
- Answering an adult researcher's questions seemed to be easiest for a child when they were allowed to engage in some meaningful activity e.g. drawing, playing during the interview.
- From the point of view of children's rights, it is crucial to recognise and acknowledge that media culture is a part of children's daily lives from the earliest age. Thus it would be possible to enhance the supply of information and opportunities for self-expression and participation as well as opportunities for adult support and awareness.

Here the Finnish study can fill an important gap in the evidence base regarding the internet use of very young children.

4.2. Activities

Children engage in a wide range of activities. The most common online activity 9-16 year olds is using the internet for school work (85%), playing games

(83%), watching video clips (76%) and instant messaging (62%). Fewer post images (39%) or messages (31%) for others to share, use a webcam (31%), file-sharing sites (16%) or blog (11%).³²

Given that the most widely reported online activity is to use the internet for schoolwork, more can be learned from one study in the evidence database. Consider this summary of findings³³ from a study carried out in Austria in 2008 with focus groups of 164 teenagers aged 13-17 years (see Bauer, Maireder and Nagl, 2009).³⁴

- Adolescents use the internet intensively and regularly for schoolwork, even without being told to do so by teachers. Google and Wikipedia dominate the sites accessed; other pages are visited very rarely. Most pupils copy from the internet and use a variety of strategies to cover up their plagiarism. In addition, the internet plays a vital role in their communication with classmates and friends. Communication via the internet is ubiquitous; often schoolwork is accompanied by chatting and texting.
- In school, the internet is not used adequately enough. It seems that school is not preparing children for the challenges of a society shaped by ICTs.
- The internet is used mostly to improve existing methods of teaching, but there is little innovative use of the internet because this would contradict the traditional understanding of school: collaborative, interdisciplinary production of knowledge and learning is not applicable in a school system which is based on the unidirectional system of a teacher teaching his students.

³¹ Kotilainen, S. (2011) Lasten mediabarometri 2010. 0-8-vuotiaiden lasten mediankäyttö Suomessa. Helsinki, Mediakasvatusseurary.

³² See Livingstone, et al. (2011) *Risks and safety on the internet*: <http://eprints.lse.ac.uk/33731>.

³³ Summary by Fabian Prochazka.

³⁴ Bauer, T.A., Maireder, A., & Nagl, M. (2009). Internet in der Schule Schule im Internet. Schulische Kommunikationskulturen in der Informationsgesellschaft. Retrieved February 27, 2012 from http://www.bmukk.gv.at/medienpool/18687/internetschule_forschungsber.pdf

Here the qualitative findings of this Austrian study complement the quantitative results of the 2010 survey, giving them an increased depth.

4.3. Risks and harm

Most children have not been upset or bothered by something they experienced on the internet. Risks are also not necessarily experienced by children as upsetting or harmful. For example, seeing sexual images and receiving sexual messages online are encountered by one in eight children but they are generally not experienced as harmful except by a few of the children who are exposed to them. By contrast, being bullied online by receiving nasty or hurtful messages is relatively uncommon, experienced by one in twenty children, but it is the risk most likely to upset children.³⁵

This study³⁶ from Estonia on cyberbullying fits in with the findings from the 2010 survey.

- Among 9 graders who participated in the study (n=410) 24.9% have cyber-bullied someone and 30.2% have been victims of the cyber-bullying.
- The majority of the students think that cyberbullying is a problem and it is widespread. Almost quarter of the bullying victims do not know the bully. Almost half of the students were uninterested and thought that bullying is funny, but a fifth of the students felt anger, depression and sadness.
- Students in this survey mainly responded by blocking messages, telling a friend and bullying someone themselves to deal with bullying. 18% of the victims of the cyberbullying never told anyone about it. Almost a third (38.3%) of the students have never received instructions in school about safer use of the internet.

³⁵ See Livingstone, et al. (2011) *Risks and safety on the internet*: <http://eprints.lse.ac.uk/33731>.

³⁶ Kuusk, K. (2010). *Küberkiusamine ja sellega seotud karakteristikud Tallinna koolide 7.-9. klasside õpilaste seas*. [Cyber-bullying and related characteristics among 7-9 grade pupils in Tallinn schools], MA thesis, Tallinn University, Institute of Social Work.

4.4. Opportunities and benefits

It is likely that more use facilitates digital literacy and safety skills. In the EU Kids Online survey one third of 9-16 year olds (36%) say that the statement, "I know more about the internet than my parents" is 'very true' of them, one third (31%) say it is 'a bit true' and one third (33%) say it is 'not true' of them. Younger children tend to lack skills and confidence. However, most 11-16 year olds can block messages from those they do not wish to contact (64%) or find safety advice online (64%). Around half can change privacy settings on a social networking profile (56%) compare websites to judge their quality (56%) or block spam (51%).³⁷

A study³⁸ from Slovakia relates digital literacy to SNS use:

- Average SNS digital literacy is greater than average overall digital literacy. A higher frequency of SNS use correlates with a higher level of SNS skills. The most preferred SNS is Facebook (70% of internet users 14+); the next is Pokec (45%).
- The most SNS-literate in the study were those aged 14-17 years, females, students or home-based youth (in terms of their employment), university and high school educated youth, those from households with the highest income and those from largest cities.

4.5. Mediation

Parents recognise that it is important that they engage in their child's internet use and they employ various strategies, depending amongst other things on the age of the child. In the EU Kids Online survey most parents talk to their children about what they do on the internet (70%) and stay nearby when the child is online (58%). Some parents do not do very

³⁷ See Livingstone, et al. (2011) *Risks and safety on the internet*: <http://eprints.lse.ac.uk/33731>.

³⁸ Velšic, M. (2012). *Sociálne siete na Slovensku* [Social Networking Sites in Slovakia]. Bratislava: IVO.



much and one in eight parents (13%) seem never to engage in any of the forms of mediation asked about, according to their children.³⁹

This German study⁴⁰ has addressed the issue of parental mediation:

- In a survey study, 158 dyads of parents and their 9 to 12 year-old children reported the use of television and video games in the family. The data were analysed with a focus on parents' strategies to regulate media use and how children perceive parental mediation.
- Factor analyses revealed three different strategies of parental mediation. Although these strategies share many aspects with the three forms of parental mediation described in the literature, parents were shown to play a more active role than previously assumed.
- Parents' restrictive mediation was characterised by rules or restrictions, but also included parents explaining that media do not reflect reality. Patronising mediation was found to include elements like shared media consumption and parents' commenting on contents. Finally, active-emotional co-use entailed parents' stressing the social-emotional aspects shown in the media (e.g. empathy).
- When analysing factors that predicted the particular form of parental mediation, it was found that parents' cognitive beliefs largely affected mediation. In particular, fear of negative media effects accompanied both active-emotional co-use and restrictive mediation.
- Not surprisingly, observed differences in parental mediation strategies between media were likely due to parents' greater familiarity with television compared to video games.
- Interestingly, overall positive ratings of family interactions were associated with children using media less frequently.

³⁹ See Livingstone, et al. (2011) *Risks and safety on the internet*: <http://eprints.lse.ac.uk/33731>.

⁴⁰ Schaan, V., & Melzer, A. (2012). Parental mediation of children's television and video game use: Active and embedded in family processes. Manuscript submitted for publication. / Schaan, V. (2010). Mediating outside the box. Drei Mediationsstrategien – zwei Medien – eine Gegenüberstellung aus der Sicht von Eltern und Kindern (Unpublished bachelor dissertation). University of Luxembourg: Luxembourg.

- In sum, survey findings reflect the complex interaction of media type, parents' cognitive beliefs, and family processes, as well as parents' active role with regard to media use in the family.

4.6 Excessive internet use⁴¹

The majority of articles in the European evidence database on the topic of excessive internet use are concentrated on the southern European countries; Turkey, Greece, Spain, Cyprus and Italy. A number of articles discuss prevalence data on excessive use but the reported figures vary widely and range from 3.7% to 24%, which is consistent with the variety reported in the international body of literature.

Other articles explore the association between psychosocial variables or personality dimensions and excessive internet use. These articles typically found positive associations indicating that psychosocial/personality variables are somehow connected with the topic of excessive use, but conclusions and theory-building about why this may be the case is lacking. Again, this is consistent with the international body of literature which struggles with similar issues.

Socio-demographic variables, gender and age were also explored in a number of articles, but the association with excessive use was inconclusive as some studies showed a positive association while others found no association at all. Other factors that were explored include, but are not limited to, lower school performance, online gambling, online pornography and friend attachment.

There are also a number of articles looking at the importance of mediation and parental influence in the context of excessive use. These studies suggest that concerns from parents or teachers about the dangers of excessive use may be

⁴¹ Summary by Daniel Kardefelt-Winther.

exaggerated and result from a relative ignorance about the medium. Indeed, there are a number of studies showing how widespread the use of internet has become amongst young people and illustrates that young people find the internet to be a necessity for life in modern society. These findings provide a counterpoint to the prevalence figures on excessive use and bring into question the usefulness of such measures in the light of how embedded internet has become in young people's lives. There are studies in the database that take a different approach to the question of excessive use and present evidence that parents, instead of using arbitrary measures of what is considered "excessive use", negotiate this with their children and base their judgment on visible negative physical consequences, such as headaches or sore eyes.

Our European evidence database contains the wide array of perspectives that are also found and presently debated in the area of excessive internet use. Some researchers advocate that excessive use can be measured and treated as pathological or as a mental disorder; these studies often display varying prevalence results and tend to use different measurements for the same concept, which can make comparison across studies difficult. Other researchers take a reflexive approach and argue that the question of what is "excessive" or not is better approached in a dialogue with the children and emphasise the importance of parental mediation in preventing negative outcomes of internet use. The European evidence database contains articles arguing for both approaches, which fairly represents the on-going debate in the field.

4.6. Mobile phones⁴²

While a search for the term mobile phones produced over 80 hits, mostly quantitative studies, the majority

of these mentioned only one or two statistics relating to mobiles, before mostly discussing different aspects of children's internet use. These studies, from diverse European countries, were usually focused on trends: media literacy and children, youth and mobile technologies, and new mobile media more generally. The data to be found here included access to mobiles phones and access to smartphones by age, the age when mobile phones or smartphones were first used, uses of mobile phones generally and gender differences in this respect. Other findings covered how few children could live without mobile phones or (a new question) without the mobile internet, how mobiles were valued compared to other ICTs, how many children used mobile phones to access the internet and how often.

There were some studies that interviewed parents or asked children about parents, covering the extent to which there were arguments about mobile phone bills, whether parents monitored mobile phone use, whether they set rules about that use, and the extent to which they financed children's mobile use. There were also some studies specifically of cyberbullying that had some data such as how much bullying was via the internet vs. via the mobile, and what forms of bullying occurred via mobile phones.

In addition there were fifteen studies that covered mobile phones in more depth. Seven were general reports on children and mobile phones (and another asked about both the mobile and the internet). Even these, again mostly quantitative studies asked some questions about risks, reflecting the fact that the internet safety agenda has become more widespread. A further two studies were on internet safety generally, four were on bullying and had substantial sections on mobile phones and one was on how much phones were used to view pornographic and violent content.

In the general studies we start to see questions about some new areas, mainly related to

⁴² Summary by Leslie Haddon.



smartphones and the mobile internet: about use of location based services, apps and payphone services. Cost is still an issue, a reason why some people do not use such services. There is also some new material relating to education, such as whether there are rules about bringing mobile phones to school and whether teachers ever confiscate them, whether they see any possibilities to use them for education purposes (neither students nor teachers can envisage this) and taking photos and videos in school to tease others. One qualitative study from Cyprus looked at the influence of peers (e.g. on which mobile brand to buy), at how children used them to enhance social status (e.g. to differentiate themselves from younger children) and how it was important to use mobile phones maintain privacy from parents – which ties in with the theme of parents being able to monitor children less in the broader mobile phone literature.

The study more oriented to risks examined whether parents talked to children about their mobile phone use (not just internet use). As regards bullying there are findings about children using their mobiles to film and then circulate bullying, about how much bullying is anonymous, and about children (in Italy) finding the circulation of photos to be one of the most annoying practices. There was one experiment reported in Luxembourg to see if banning mobile phones from schools (for a test group) led to a reduction in cyberbullying – it did not. As regards violent video content viewed on mobile phones (broadly defined to include sexual and bullying videos), a German study looked at how many children had seen these: 43%. And finally one study in the UK showed what could be investigated through qualitative research. It examined how children managed risks related to sexuality and the new issues opened up by the sending of downloaded or user generated sexual images, or the sharing of these amongst peers via mobile phones. Through the way they talk about and provide accounts related to these developments and

related risks (of images being passed on to others, of images accidentally reaching the wrong people) we see how the children are managing their self-presentation, and self-(gendered and sexual) identity.

4.7. Austria⁴³

A search query for the term “Austria” in the EU Kids Online database produces 70 hits, although ten of these studies also involve other countries. Some studies come up several times due to the fact that there is more than one source of data for the same study, leaving 59 distinct studies for Austria. Most of the Austrian studies are quantitative, but there is also around one third of studies using a qualitative method. Furthermore, most studies cover older children or adolescents (14 years or older).

Apart from the EU Kids Online survey, Austria lacks studies about the general internet use of young people. In addition, unlike in countries like Germany, there is almost no longitudinal data available. Most studies that are representative for the whole country and deal with the internet use of young people are funded by private companies like internet providers and show almost no theoretical framework and often the results are not freely available. Due to funding by several provinces, some studies focus exclusively on one province like the annual study on internet use in Upper Austria or a study on addictive behavior in Styria.

However, when there are data available, the studies covering access and use of the internet in Austria indicate that almost all young people use the internet in some way. Access rates are generally over 85% for the age group beginning at six, rising to around 95% for older children (14 and older). In addition to these results, one study finds that even

⁴³ Summary by Fabian Prochazka.

40% of the 3- to 6-year olds use the internet at least once a week, predominantly with a tablet device. Children and adolescents in Austria use the internet mostly for schoolwork, looking up information and for social networking, which is more popular among girls than boys. Another popular activity is watching videos on platforms such as YouTube. Both quantitative and qualitative studies reveal that computer (Laptop and PC) and mobile phones are now the favourite media devices of young people, just recently replacing television. The internet in general is the primary source of information for young people.

Another important factor is the high rate of mobile phone usage among Austrian youth. Following the results of the EU Kids Online survey in 2010, 53% of Austrian children between 9 and 16 accessed the internet through a mobile device. The figures in this age group are now most probably higher, although there are no comparable data available. Over 80% of 14- to 29-year olds use the internet via a mobile device and 50% of Austrian children acquire their own mobile phone between the ages of 7 and 10 years. Once more, girls use mobile phones significantly more often than boys.

Regarding risks and opportunities, Austrian studies cover a wide range of different topics. In general, the studies are consistent in stating that Austrian youth are aware of risks like cyberbullying and protection of personal data but their understanding of the processes at work and their own assessment of what is risky is not so sophisticated. Their trust in information found on the internet is very low compared to trust in other sources of information. However, most studies agree that it is not enough to look at the online risks itself but that it is important to look at offline factors influencing online risks because the boundaries between both spheres are blurred and often young people do not make a distinction between the two.

5. SUMMARY AND CONCLUSIONS

This report set out to identify the available empirical evidence regarding children and young people's access to and use of internet and mobile technologies across Europe. In addition, it has tried to demonstrate the potential in drawing on the findings of studies carried out in recent years. It has focused on research concerned with (a) children (up to 18 years old), as well as their parents/families and domestic users generally, (b) online technologies, focusing on issues of use and risk; and (c) the 33 countries in the EU Kids Online network (Annexes 1 and 2).

The aim was to locate the research that exists, scope its main features and biases, identify the key trends and, especially, reveal gaps in the evidence base. This, we hope, is useful for a diversity of research users in academic, policy, funding and other organisations.

The EU Kids Online network has identified more than 1,200 separate research projects and coded these according to a set of criteria. This work will continue throughout the course of the project with a second round of search for studies being conducted in 2013 and a second edition of this report being planned for spring 2014.

5.1. Key features of the available research

Although the scale and quality of research studies varies considerable, research exists in all participating countries regarding children and young people's use of the internet and online technologies. Its key feature may be summarised as follows.

The evidence base continues to grow, updating findings and deepening analysis; but this

expansion does not mean that the pressing research gaps identified in 2009 have now been filled. The number of studies on children and internet and mobile technologies has grown by some 20 to 30 per cent each year since the beginning of the century but this has not led to increased emphasis (proportionally) on, for example, younger children or qualitative methods. Instead studies conducted in later years have a similar profile to those conducted in the earlier years of the roughly twelve year period studied here. The evidence base largely comprises single nation studies, though some multinational and pan-European research exists.

There is more research on risks and harm than opportunities and benefits. For every two studies that have (or include) a focus on opportunities and benefits related to the use of internet and mobile technologies there are roughly three studies focusing on risks and harm. Mediation (by parents or other means) is, however, the least covered topic.

Research is mainly funded publicly and conducted on the national level. Funding bodies that can be described as 'public' are behind almost half of the studies in the evidence database. Doctoral and master's theses are also an important contribution to the evidence base. EC funding is associated with almost one in ten studies overall but almost 40% of the multi-country studies.

The majority of studies use only quantitative data. Some two thirds of studies use only quantitative data and the increased number of studies in general does not seem to have resulted in more studies using mixed methods.

There seems to be an increased emphasis on academic publication. The number of studies whose findings have been published in journals has

increased slowly over the years. In the years from 2000 to 2006 on average less than 20 per cent of studies were published in a journal article but from 2007 to 2012 the average is just above 30 per cent. This is an important development since academic publications, especially in journals, generally include a formal process of anonymous peer-review and editorial scrutiny and guidance.

5.2. Significant gaps in the evidence base

Despite the growing number of studies identified each year, there are still significant gaps in the evidence base. **Indeed, the gaps identified in 2009 all still apply:**

- **Uneven coverage by age, especially very young children, despite the rapid rise in their access to internet and mobile technologies.**
- **Overwhelming focus on the fixed internet, to the neglect of mobile, convergent and emerging technologies.**
- **Too little known of children's online activities and how they do or may reap the benefits.**
- **Gaps in the evidence for exposure to online risk, how children respond and which are vulnerable to harm.**
- **Gaps regarding the role of parents and teachers, along with other forms of safety mediation, and lack of knowledge of their effectiveness.**

The most serious problem is the continuing lack of research on younger children. This gap was identified previously and, to be sure, the growing number of studies has resulted in a growing number of studies on young children. However, as a proportion of all studies identified in the evidence database, studies on young children are not becoming more common.

As regards topics studied, even though the EU Kids Online survey of 25 countries in 2010 did much to provide important information, there remain key gaps related to consequences of risks (especially new and emerging risks), how children cope with risky experiences, which children are vulnerable to online harm, and on which children actually gain benefits from internet use.

Methods matter. The vast majority of studies on children's use of internet and mobile technologies employs quantitative survey methods. More qualitative research would permit a richer understanding of the experiences of children (and their parents and teachers). This would facilitate efforts to anticipate the likely effects of possible interventions. This raises a final notable lack, namely on the independent evaluation of safety interventions of various kinds: many such interventions take place, but remarkably little is known of what works, when or why; thus it is likely that new interventions fail to learn from the mistakes of previous ones.

5.3. Emerging issues and challenges

Many of the issues and challenges identified in previous analysis of the evidence base remain unchanged. One of these issues is **time-sensitivity**. Research in this field becomes quickly out of date as technologies, institutions that promote and manage them, and children's own practices all continue to change. Consequently, even where substantial amounts of research exist, the findings must be regularly updated. This leads to another challenge which is **lack of continuity**. The evidence database holds very few long-term or longitudinal studies. Most research is concerned simply with the short term nature and consequences of internet use. Some studies are repeated a few years apart, providing the possibility of trend

analysis. But more tracking studies are required to understand the wider implications of online technologies in the long term.

Another consequence of the nature of the research field is that **comparative studies are difficult and challenging to conduct**. But although multidisciplinary, multi-method, contextual, and longitudinal research is particularly demanding, it remains sorely needed if we are to understand not only what children encounter online but also why, how and with what consequences

Children's internet use, especially regarding online risks, is a complex phenomenon. Multiple theoretical perspectives and multiple methods are needed so that the various dimensions of children's internet use can be understood in the round – including both the incidence of certain practices in the population, as well as children's own perceptions, those of their parents, and how both these fit within the context of everyday internet use.

As the body of research continues to grow year by year it is important to note that more research is not necessarily needed. Current research efforts could probably be better co-ordinated. Research is sometimes poorly reported, with key information missing, or it is difficult to gain access to. There is scope for improving the quality, rigour and public accessibility of research evidence in this field.

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ANNEX 1: EU KIDS ONLINE

Overview

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

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

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

platforms, privacy, personal data protection, safety and awareness-raising practices in schools, digital literacy and citizenship, geo-location services, and so forth).

Work packages

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

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ANNEX 3: CODING FRAME

Variable	Description
Project ID	Give each study an ID number for your own purposes - All data collection belonging to the same study/project gets the same ID
Coded by	Write the name of the person who has done the coding this is important if more than one person are involved and also can be useful at later stages if there are things to be sorted out
Project title	Write the project title both in original language and a brief English translation
Year of fieldwork	Enter the year in which data collection took place – if the data collection was spread over two years use the first year but if the data was collected in more than one separate rounds then each would be a separate entry (but same project ID)
Country (or countries) where data was collected	Indicate in which country (or countries) data was collected using two letter country codes and if data was collected in more than one country, separate with a dash
Type of sample <ul style="list-style-type: none"> - Nationally representative - Representative on a regional level - Representative for a subgroup of some kind - Convenience sample 	Define type of sample – if the same project has more than one type of sample do a separate entry for each (but same project ID)
Age of children studied	Mark the age of children that are studied or which the study makes inferences on – indicate for each age whether children of that age were included (1) or not (0)
Number of respondents	Write number of respondents or interviews conducted
Target group studied <ul style="list-style-type: none"> - Children - Parents - Adults - Teachers 	Indicate the target groups included in the study – this would be the type of individuals who are interviewed
Type of Methodology <ul style="list-style-type: none"> - Qualitative - Quantitative 	Write the type of data collected (qualitative or quantitative) – a study using both becomes two separate entries (but same project ID)
Data collection method <ul style="list-style-type: none"> - Telephone - Face-to-face - Paper self-completion - On-line/email - Other (please describe) 	Describe the data collection method

<p>Topics covered</p> <ul style="list-style-type: none"> - Access and use - Activities - Risks / Harm - Opportunities / Benefits - Mediation 	<p>Indicate the topics covered in the study – indicate for each topic whether it was covered to some extent (1) or not (0)</p>
<p>Language(s) in which findings are available</p>	<p>Indicate the languages in which findings are available using a three letter code</p>
<p>Publication of results</p> <ul style="list-style-type: none"> - Printed or online report - Book chapter - Journal article - Brief summary available online - PhD or Master's thesis - Other (please describe) 	<p>Note the kind of publications where findings are available – indicate for each kind of publication whether (1) or not (0) findings from the project have appeared in such a publication</p>
<p>Main source(s) of funding</p> <ul style="list-style-type: none"> - EC - Public funding - Private funding - NGO or charity - PhD/Masters Research - Other (please describe) 	<p>Indicate the main sources of funding – for each of the listed sources indicate whether (1) or not (0) the project has been funded in this way</p>
<p>Data set publicly available</p> <ul style="list-style-type: none"> - Yes - No 	<p>Write whether the raw data can be obtained or not – it is expected that this will be the case for only a limited number of studies but that of itself is interesting</p>
<p>Relevant publication(s) in APA style</p>	<p>Please list relevant (or most relevant) publications using APA style</p>
<p>Principal investigator</p>	<p>Write the name of the principal investigator (or contact person) with available contact information</p>
<p>Link to project and/or findings</p>	<p>Please provide a link to the project or finding if this is available</p>
<p>Comments</p>	<p>Write any comments that might be of interest</p>