LSE — THE LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

EU **Kids Online**

Researching Children's Experiences Online Across Countries:
Issues and Problems in Methodology

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This is a report from the *EU Kids Online* network.
For a complete list of participants, see Annex B

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1. Introduction

1.1 Overview

Across Europe and beyond, children and young people are going online in ever greater numbers and for ever more activities. The 2005/6 Eurobarometer survey shows that 50% of children (<18 years old) in the EU25 have used the internet, rising from just 9% of those under six to 1 in 3 6-7 year olds, 1 in 2 8-9 year olds and more than 4 in 5 teenagers aged 12-17.[1] Cross-national differences remain substantial, ranging from less than a third of children using the internet in Greece and Bulgaria to over two thirds in Estonia and Denmark.

Among the many responses to this development is a burgeoning of empirical research. Indeed, policy makers, industry, child protection experts and others are increasingly reliant on empirical research to guide their understanding of online use, risk and issues as they affect children and families in Europe and elsewhere.

Research is needed for the basics of which children have access to what technologies, for the tricky issues of discovering the kinds of risks children may encounter online and why, and for guiding practical interventions – targeting safety advice, evaluating awareness programmes and anticipating new trends. While the academic research community has been researching the domestic practices associated with access and use of media for some decades, the interface between academic research and policy development has not always been as constructive as it might be.

This review is designed to help bridge this interface in one particular respect, namely that of maximising the benefits of empirical research conducted on children's online use and risk. To that end, we present a considered but accessible account of key issues, dilemmas and insights from the methodological literature in order to inform both the critical interpretation of already available research and the appropriate commissioning and design of new research.

This is, we believe, of particular importance in today's research and policy context, not only because it is fast-moving and international but also because there are many players, with sometimes competing expectations of research conducted by the academy, NGOs, governments, industry and market researchers.

'Evidence-based policy' has become a mantra in many circles. But this raises many questions, including:

- What counts as good evidence?

- How should we proceed when different projects produce apparently conflicting findings?

- Are there lessons from previous research, on earlier technologies, of value for the new field of social questions regarding the internet and new technologies?

- Can we apply methods developed for the adult population to children, particularly the ever-younger children now using online technologies?

- And what about the diverse linguistic, scientific and cultural traditions across Europe – how can research findings be applied across contexts without losing what is distinctive to each context or country?

1.2   Aims and structure

This review aims to enhance the understanding of methodological issues involved in studying children and the Internet across countries. Our anticipated audience is broad, encompassing all those concerned with empirical research in this field, as well as the broader field of European comparative social science.

The review specifically aims to increase awareness of the criteria by which research can and should be critically evaluated, the specialised issues that arise in researching children's use of online technologies in particular, the considerations to be borne in mind when commissioning and designing new research.

The review is structured according to four main themes:

- General research orientations, including qualitative and quantitative approaches to social science research and the means of integrating these;

- Researching children, including the specific ethical and age-related issues that arise in this specialist field of research methodology;

- Researching online technologies, addressing the balance between the application of familiar and the development of new methods to address new technological phenomena;

- Cross-national comparisons, addressing the issues of comparative methodology that arise when conducting research in and/or for research users in more than one country.

The review is written as an academic review, its anticipated audiences being both academics and research specialists/users in relevant policy, public and commercial organisations.

Our working assumption is that readers of this review may be already experienced in relation to one or more of the above theme but wish to learn more of the others: an expert in researching new technologies may, for example, know little about researching children; a child specialist may not be familiar with cross-national comparative methodologies; and so on.

For those wishing a more advanced treatment of these issues, this review can only provide a starting point. The bibliography is designed to identify future directions to pursue any of the issues raised here, and we have sought to make it as multidisciplinary and multilingual as practicable.

1.3   EU Kids Online

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

- Children (mainly up to 18 years old), their families, domestic users;

- Online technologies - mainly but not only the internet; focussing on use and risk issues.

- European, cross-national, empirical research and policy.

For further information, see the Appendix to this review, and www.eukidsonline.net.

This review is the first of two deliverables for Work Package 4: Methodological Issues.

The second deliverable, due in September 2008, is a Best Practice Guide. This will be an accessible and practical document designed to disseminate best practice in methodology so as to guide the design and conduct of future research on children and online technologies in Europe.

This work package is being conducted in parallel with others. It thus draws on the online data repository, now online, that is working to identify all empirical research in this field in Europe (see www.eukidsonline.net). It intersects with the work of Work Package 2, which is examining the intellectual, political and cultural similarities and differences in research contexts across Europe. And it informs the work packages examining empirical findings across Europe and framing policy recommendations.

Last, we note that this review is the product of the collective efforts of Work Package 4 members, with broader input from the EU Kids online network as a whole (see Annex). The network has met in several meetings over the past year to discuss the review's contents. The editors have then worked to integrate contributions and produce the final text.[2]

2. Approaches to research

2.1 What is research?

> "In the social sciences, the scientific method refers to research methodologies that pursue verifiable knowledge through the analysis of empirical data."[3]

In order to add to knowledge and produce new insights, the key terms in this quotation – method, verifiability, knowledge, analysis, empirical, data – surely capture the central features of research. One might add, independence from political, commercial or other influence; also that both the conduct and the outcomes of research are open to critical scrutiny, preferably through a process of anonymous peer review, and that the research is informed by an explicit rationale (ideally, theory led, though sometimes practical or policy-oriented).

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.

While perhaps obvious, we begin with these observations because, in collecting empirical projects for the EU Kids Online Data Repository, it has become apparent that some 'research' fails to live up to these standards. In some cases, we found that methodological decisions go unjustified, with samples poorly drawn, methods loosely specified, findings only partially reported, peer review absent and the public availability of research details lacking. In other cases, fortunately, we were impressed at the quality, range and rigour of research in this field.

It seems worthwhile, therefore, to discuss the issues that appear to us central to research on children and online technologies in Europe. Although some of what follows will be familiar to our readers, we hope enough is new to interest and inform the community of researchers and research users overall, our purpose being to establish high standards of research in this field.

2.2 Plurality of approaches

Although our starting quotation, above, is uncontentious for many, it glosses over some major points of disagreement for some. Not all researchers in this field work within a social science perspective. Even within the social sciences, there are major differences of approach between positivists[4] and critical scholars[5] among the different disciplines who contribute (psychology, sociology, media and cultural studies, social studies of technology, to name but a few) and, indeed, among the different research communities in Europe. Hence, any discussion of research must begin with the concept of epistemology:

> "Literally 'the study of knowledge', epistemology is the inquiry into the conditions, paradigms, and limits of knowledge, including the nature of truth claims and the historical contexts that have shaped human inquiry…. A key divide running through many arguments over epistemology distinguishes those who approach social life *externally*, as a matter of objective knowledge, and those who approach it *internally*, with an effort at understanding the meaning that social actors give cultural phenomena. There have been many attempts to overcome this division or to combine the two perspectives, but none has commanded general assent."[6] (emphasis added)

Those who approach it 'internally' claim a reflexive approach to research:

> "Reflexivity [is] one of the constitutive problems of modern philosophy and social science, rooted in the question of whether and how persons can know the world with any certainty…. In the social sciences, reflexivity often refers more narrowly to the problem of accounting for the role of social scientists as participants in the cultures they study. Beyond the question of the personal biases that may affect research, social scientists need reflexive awareness of their impact on the objects of study….
>
> Reflexive approaches frequently come into conflict, therefore, with the forms of positivism that continue to underwrite much social-scientific research. Positivism assumes the impartial, objective, and detached role of the social scientist with respect to the subject matter. It implies an understanding of reality as given—awaiting the truth-revealing methods of the scientist."[7]

We stress this debate not to offer any resolution but to note that the empirical research used to inform debates over children and online technologies tends to come from one or other, or sometimes a combination, of these approaches. And this, perhaps inevitably, causes tension.

National surveys that include children (typically, teenagers) in a survey of adults generally take a positivist approach, implicitly if not explicitly, for they generally seek objective facts to inform policy decisions. Qualitative research with younger children is often informed by a reflexive approach, seeking to understand the experiences of children while acknowledging the influence of the adult researcher in the research process. The conclusions of these approaches may or may not converge, and then research users must decide if it was the methodology that made the difference and, if so, how to weigh the different conclusions offered.

These decisions may be differently judged in different parts of Europe. In much of Northern Europe, research traditions combine a European approach with a strong influence from America, the former tending to stress critical and reflexive approaches and the latter being more positivist. The development of social research in Southern Europe was delayed by comparison with Northern Europe for both political and economic reasons, although applied research in support of technological or economic interests was promoted. In Central and Eastern Europe, a diversity of approaches is pursued, with no overall tradition emerging as dominant.

The post-1960s ferment saw a growing critique of quantitative and positivist approaches, with the development of feminist, child-centred, critical and qualitative approaches, though the pragmatism of recent years has led many to value multi-method approaches, less bifurcated by ideological differences, partly because of the increasingly porous borders between research communities in different countries.

Most recently, research funders have stressed the value of policy-oriented research and research that engages with non-academic research users, this tending to emphasise the quantitative over the qualitative (see below).[8] The same is the case for the growing volume of work at a European level. In this review we take no sides but rather emphasise the importance of high quality research selected, conducted and justified as the optimal way of answering the research question asked.

2.3   Methodology

Any research usually consists of three levels of inquiry, all of which broadly concern methodology: the nature (or theory) of knowledge; the approach to empirical research; and the specific methods used (Creswell, 2003):

- The theory of knowledge is conceived in philosophical terms according to complex, diverse and often competing paradigms (including positivism, empiricism, interpretative or hermeneutic approaches, critical theory, and so forth).

- The approach to research translates the theory of knowledge chosen according to principles of empirical investigation (e.g. principles of sampling, theory of measurement, research ethics, hypothesis testing, validity, contextualisation, etc).

- Specific methods used set out detailed and practical rules for implementation, including data collection, analysis and reporting (e.g. surveys, experiments, interviews, observations, etc).

In what follows, we discuss the key issues, debates and decisions to be made at regarding each of these levels of inquiry.

Philosophical frameworks underlying methods

Depending on their fundamental assumptions, researchers implicitly if not explicitly frame their inquiry according to one of several main paradigms (for detailed discussions see, for example, Lincoln and Guba, 1985; Hammersley, 1995; Bryman, 2000; Patton, 2002; Creswell, 2003).[9] These may be broadly divided into two broad paradigmatic 'schools of thought' - positivist and non-positivist[10] (or positivist and interpretive Lobe, 2007).

The basic beliefs of *positivism* are rooted in a realist ontology, which claims there is a reality that exists independently of the researcher that is determined by unchangeable natural laws; thus social science models its scientific method on the premises of the natural sciences (Hammersley and Atkinson, 2003: 4), following an objectivist epistemology which imposes a distant, non-interactive posture (Guba, 1990: 19-20). The most important feature of scientific theories from the positivistic standpoint is that 'they are open to, and are subjected to test being confirmed or at least falsified, with certainty' (Hammersley and Atkinson, 2003: 5). This is, however, only feasible in carefully controlled conditions (e.g. experiments).

Nowadays, most social scientists have already moved from a positivistic towards a *post-positivist* position. This is best characterised as a modified version of positivism, acknowledging some limitations arising from positivism and its approach to reality. Thus, according to Guba (1990: 20), post-positivism ontologically moves from a 'naïve realist posture' to 'critical realism'[11]; this still assumes that the world out there is determined by natural laws, and thus objectivity remains an ideal, but it acknowledges limitations in the ability of human beings to perceive that world veridically (for they are influenced by their theories, hunches, background, knowledge and values).

The distinctive feature of post-positivism is a stance that assumes that all knowledge is 'tentative' and subject to revision. A moderate degree of reflexivity on the part of the researcher is thus called for: since researchers cannot detach themselves completely from the world studied, findings must be shaped partly by the interaction between the researcher and the researched (typically conceived in terms of biases that undermine objectivity) and conclusions can only be probabilistic not absolute (for more details, see also Reichardt and Rallis, 1994). Further, it strives to address the positivistic imbalance between precision and richness and aims to include more qualitative methods, to depend more on grounded theory and to recognise the importance of discovery as part of the research process (Guba, 1990).

A typical postpositivist statement – here a definition of survey methodology which usefully characterises much of the quantitative research in the field of EU Kids Online – is as follows:

> "Surveys are useful in a wide range of research projects that seek objective data (for example, on income or education) and/or information about subjective opinions, such as the prestige of different occupations or preferences in an election. They are vulnerable, however, to a range of distortions inherent to the data-gathering process, from the necessity of prior construction of the path of questioning to the tendency of respondents to conform to perceived social norms. Care is thus needed in the formulation of individual questions and protocols for the selection of samples, in the assessment of patterns of response, and in the interpretation of results. Ideally, both questions and protocols are tested before use."[12]

Critical theory is, according to Guba (1990: 23), an umbrella term used to denote ideological orientations such as neo-Marxism, feminism, materialism as well as critical theory itself. The denominator of all these perspectives is the rejection of positivist ontology and its claim of value-free research. Similarly to post-positivism, critical theory assumes a critical realist ontology which is best approached in practice through a subjective epistemology (for research is shaped by the social, cultural, economic, ethnic and gender values of the researcher). Methodologically, critical theory emphasises a dialogical approach, mainly but not always employing qualitative methods. Central to the critical approach is the quest to reveal the operation of established institutions and processes of power in order to understand not only how things are but also, possibly through various forces of resistance, how things could be otherwise (Morrow and Brown, 1994).

Constructivism, lastly, departs from the foregoing approaches by readily acknowledging the existence of multiple realities 'in the form of multiple mental constructions, socially and experimentally based, local and specific' (Guba, 1990: 27). This results in a relativist ontological position whose core principles of constructivism are often called 'interpretive' (see Schwandt, 1997) or 'naturalistic' (Lincoln and Guba, 1985). Epistemologically, constructivism sees no alternative to a subjectivist position, since findings are inevitably shaped by the interaction between the researcher and the researched. Since each individual possesses different values, this approach asserts that constructions of reality 'do not exist outside of the persons who create and hold them' (Guba and Lincoln, 1989: 143). Thus they are best approached through hermeneutic and dialectic methods, by reflexive researchers who recognise the shaping role of their own experiences and who try to keep open the communicative channels between researcher and informants to enable a dynamic revision and improvement of the emerging analysis.

The approach to empirical research

> 'The logic of statistical generalisations has more of an affinity with the interests of social engineering, rather than social theorising. Whereas the latter is geared towards the intensive explication and comparative generalisation of aspects of the social world, the former is geared toward the construction of multivariable modelling intending "prediction" of variances… From a critical theory perspective the fundamental difficulty with using statistical analysis is that it is based on the relations between variables, while explicative and comparative analyses, as we have presented them, are based on discerning structural relations within and between mediations – relations that turn on the dialectic between human agency and social structure' (Morrow and Brown, 1994: 218).

As this quotation explains, there is a ready (though not necessary) translation from questions of knowledge to approaches to empirical research, with positivist research tending to favour quantitative research (since statistic generalisations, in turn, lend themselves to guiding policy interventions) and interpretative or critical research favouring qualitative research (where a complex and contextual understanding is more often the aim).

In social science methodology, the terms 'qualitative' and 'quantitative' have been used in a variety of ways to label (often reductively, sometimes pejoratively) research paradigms, methodologies, methods, data and researchers themselves (Campbell and Holland, 2005). Commonly treated as the basic methodological division (or decision), the terms 'qualitative' and 'quantitative' are used in two contrasting ways: literal and derivative. The literal contrast concerns approaches to data collection, research design and analysis, whereas the derivative contrast concerns broader epistemological assumptions or 'paradigms' (Howe, 1992: 237). Some discussion of these terms is, therefore, worthwhile.

Perhaps the most fundamental difference between qualitative and quantitative research is their approach to deduction and induction. Deduction asserts a close link between theory and data, deducing hypotheses (often but not necessarily hypotheses that assert causal relations) from theory in order to test them empirically. Induction, more used in qualitative research, puts the observations first (rather than the theory), collating and interpreting these in order to support 'goals such as discovery and exploration' (Morgan forthcoming); hypotheses may be generated as the outcome of such an approach.

Another key difference is that between specific (contextual) population coverage and general (non-contextual) population coverage by qualitative and quantitative research respectively. Research findings held to apply across the population universe, using large samples, is non-contextual: it seeks 'to understand a larger number of people in a way that applies to a wider range of settings' (Morgan, forthcoming) and 'to achieve breadth in coverage and analysis' (Campbell and Holland, 2005: 2). By contrast, contextual research is applied to a specific locality or social setting (Campbell and Holland, 2005: 3), providing a 'holistic understanding of specific context … studying behaviour as it occurs naturally, with a minimum of intrusion' (Morgan, forthcoming); thus contextual research trades breadth of coverage for the depth of understanding.

Also important is the objective-subjective distinction which frames the understanding of the researcher-researched relation. Objective research conceives of researchers as carefully detached from the people they study, the data they produce and the findings they interpret. To maximise objectivity, such research employs highly standardised measurement procedures. Subjective researchers are, on the other hand, highly reflexive about how they approach the research, allowing an active and flexible involvement with those they study, immersing themselves in the research context, and seeking to convey the meanings of the research findings for their informants.

Last but not least, we note the simplest distinction between quantitative and qualitative research, the distinction that gives them their name, namely the kind of data they produce (typically, numbers or words, respectively). Quantitative research produces numerical information, sometimes called 'hard data' (Neuman and Kreuger, 2003: 139; Robson, 2005) which is viewed as robust and reliable insofar as it conforms to the theory of sampling (population representativeness)[13] and measurement (Bryman, 2001: 285). Qualitative research produces non-numerical information in the form of prose or text (including images as well as words), or what Neuman and Kreuger (2003: 139; see also Robson, 2005) calls 'soft data, or deep data (Bryman, 2001: 285) because of the contextual and prolonged data collection phase involved.[14]

Methods

This is not the place for an extended discussion of particular methods, for these are well described in the numerous research methods textbooks and 'how to do' accounts in the social science literature (Creswell, 2003; Neuman and Kreuger, 2003; Bryman, 2004). But to complete our account, we summarise below the main methods in use, in order to observe the translation of epistemological and methodological decisions and debates into particular choices regarding research method.

Method	Research goal	Nature of Data	Sampling	Analysis of data
Survey	Generalisability, distribution, stratification,	Quantitative - many respondents	Probabilistic, large samples	Statistical, summation
Experiments	Causality	Quantitative - a moderate number of respondents	Probabilistic, with sample divided between treatment and control groups	Statistical analysis
In-depth interviews	Search for meaning and understanding	Text, video, audio, few respondents	Snowball, purposive sampling, small sample	Analysis of text, talk, video, audio
Focus groups	Search for meaning and understanding with focus on group dynamics	Text, video, audio, several respondents in a small number of groups	Snowball, purposive sampling, small sample size	Analysis of text, talk, video, audio
Fieldwork (participant observation)	Search for meaningful patterns of action in context	Observational notes, records of time use, photos, etc	Situated research, centred on a specific case or context	Analysis of text, talk, video, audio

While these methods themselves are, we believe, broadly familiar to social science researchers and those in related fields concerned with children, young people and new online technologies, some of the expert deliberation regarding the standards of research, its evaluation or integration across data types is, for many, less familiar. Hence, we discuss these matters in what follows.

2.4   Standards of empirical research

Regardless of their theoretical perspective, methodological orientation, data collection and analytic methods, all social scientific studies strive for credible and authentic results. Data quality depends on the quality of measurement procedures, but measurement is differently addressed within the quantitative and the qualitative traditions.

Quantitative standards

Within the quantitative tradition, measurement is most often addressed by means of the well-established concepts of validity and reliability (Hammersley, 1987: 73). As defined in the Dictionary of Social Sciences, reliability refers to the ability to accurately repeat the results of an experiment or research project, while validity refers to appropriate fit of the indicator

measured to the analytic variable or concept and to the appropriateness of the methods of measurement to the subject under study. Thus:

> "The degree to which a research technique or experiment yields the same results over repeated attempts and by different researchers. Reliability is distinct from validity, which concerns whether a technique is an appropriate measure of the phenomenon in question. In the social sciences, reliability often raises informational problems, insofar as the knowledge gained by the subjects can skew results…

> "With regard to any study or analysis, validity refers to the degree to which the analysis is properly conceived to address the subject of study. Validity is therefore different from accuracy or reliability: studies may be flawlessly conducted (accurate) and results may be repeatable (reliable), but the methods may nonetheless be inappropriate for achieving the desired results. An adequate measurement must be both reliable and valid".[15]

Validity has been subdivided according to measurement (including construct, content, predictive, criterion and face validity) and in relation to assumptions of causal inference (including internal and external validity; see Hammersley, 1987: 75; Adcock and Collier, 2001).[16] Measurement validity is directly connected with how well the concept or a construct is translated into a set of indicators to measure the variables we want to measure. Are we asking the questions we want to ask? Before writing the questions, the researcher needs to draw a line between questions designed to measure subjective states (attitudes, perceptions, opinions, etc) and questions that measure observable facts (activities taking place when using ICTs etc), the former posing most challenges to validity (even though the notion of the 'fact' is itself much debated in social sciences).[17]

Qualitative standards

For qualitative methodology, however, it is inappropriate to try to adhere to the cannons of validity and reliability (LeCompte and Goetz, 1982: 31), though some have tried (e. g. Crittenden and Hill, 1971; Miles and Huberman, 1984; Adcock and Collier, 2001). Most,[18] instead, have worked to develop alternative criteria to assess the quality of qualitative data. These are, for the most part, established in relation to the views of people who conduct, participate in, read or review a study. Specifically, Lincoln and Guba (1985) introduced a set of alternative validation standards within the interpretivist tradition that are analogous to conventional concepts of validity and reliability (Schwandt and Halpern, 1988: 71).

Being critical of the scientifically-driven 'truth-value' (Lincoln and Guba, 1985) as opposed to 'the assumption of multiple constructed realities (Lincoln and Guba, 1985: 295), Lincoln and Guba argue within a social constructivist epistemological position that credibility should replace 'truth-value'. Credibility is thus analogous to internal validity. It is concerned with whether findings and interpretations from a naturalistic inquiry are perceived as credible by those respondents who supplied the original data.

Further, to replace reliability Lincoln and Guba (1985) propose dependability, a criterion of consistency mainly concerned with the process of inquiry. It suggests that the research process of qualitative inquiry should be carefully documented (Schwandt and Halpern, 1988). Dependability should be attained through a process which Lincoln and Guba (1985) referred to as the concept of auditing.

The next criterion proposed is 'confirmability', which is analogous to objectivity. This is concerned with the neutrality of the research process, namely the outcomes of the research. It is focused on how the interpretations are grounded in the data and whether they are formulated in ways consistent with the available data. As with dependability, auditing should also serve as a procedure to ascertain confirmability (Schwandt and Halpern, 1988).

Last, Lincoln and Guba propose the criterion of transferability to replace external validity. This concerns the applicability of research findings from a sample to a population. External validity deals with generalisations from a sample to a population and it is established by representative samples. On the contrary, in qualitative research we should assert the potential uniqueness of every local context. As Lincoln and Guba (1985: 316) advocate, 'the

naturalist cannot specify the external validity of an inquiry; he or she can provide only a thick description necessary to enable someone interested in making a transfer [of findings] to reach a conclusion about whether transfer can be contemplated as possible.'

Asking sensitive questions

In both qualitative and quantitative research, certain kinds of investigation are especially prone to bias, particularly those that require the researcher to ask sensitive questions or address private, intimate, upsetting or personally difficult issues. One approach is to consider sensitivity an essentially unproblematic matter, by assuming that some topics are sensitive *per se*. But what is sensitivity, how much does it depend on the individual informant (or researcher) or context, and can it be distinguished in practice from the problem of social desirability biases (Sudman and Bradburn, 1974)?

From an empirical point of view, sensitivity has been defined in relation to criteria such as the potential costs of answering particular (sensitive) questions, or in relation to the degree of discrepancy between the responses of people who had to identify themselves and those that could remain anonymous (Crino et al., 1985; Fuller, 1974). Following this perspective, if anonymity makes a difference, then the item is considered to be sensitive (Tourangeau and Smith, 1996), compared the likely honesty of answers obtained for sensitive questions when self-administered or interviewer-administered, finding the former to be superior). Similarly, non-response rates have been seen as indicative of item sensitivity (Johnson and DeLamater, 1976). Finally, a substantial body of work has empirically defined sensitivity in relation to threat, typically asking respondents how uneasy they think that each item makes most people feel (see Blair, Sudman et al., 1977; Bradburn, 1983).

Sensitivity has also been defined in relation to broader theoretical issues. In this respect, Lee (1993) suggests that sensitive research can be defined as "research which potentially poses a substantial threat to those who are or have been involved with it" (p. 4).[19] Considering the various ways in which sensitivity has been defined it has been suggested that it may be helpful to explore the ways in which sensitivity is context dependent (Barnett, 1998). On this view, researchers should address how sensitivity is defined, operationalised and addressed in particular research contexts and for particular populations.

2.5 Mixed method designs

There are two main rationales for combining qualitative and quantitative research. Triangulation is often misguidedly used as a synonym for the concept of mixed methods research, but in fact, triangulation is only one of the possible rationales for combining qualitative and quantitative methods. The alternative, complementarity, is also a common driving force for mixed methods research. In studies of children and youth, complementarity is more commonly practised (i.e. combining field observations with interviews) in order to capture fully the richness of their experiences.[20]

Triangulation

Triangulation refers to a strategy for integrating multiple methods, generally but not necessarily across quantitative and qualitative research methods (Bryman 1992: 63; Crano, 2000). Initially borrowed from trigonometry for use in quantitative psychological research, this term originates from Campbell and Fiske's (1969) attempt to reduce their reliance on single-method measures of concepts by employing different independent measurement procedures in order to increase the validity of research results. Ever since, methodologists have favoured the triangulation metaphor to denote the combined use of different measurement operations; some authors understand it as 'an attempt at mutual validation, while it is seen by others as a means to combine different theoretical perspectives on a phenomenon under investigation' (Erzberger and Kelle, 2003: 458).

The initial triangulation concept, focused on multiple methods and sources of data, was expanded by Denzin (1978: 291-305) to include investigations and theories. The four different types of triangulation are thus:

- Multiple methods (methodological triangulation), divided into between-methods and within-methods triangulation. A within-method approach imposes the repetitive use of the same method on different occasions, while a between-method approach suggests the use of different methods in a single study.

- Multiple data sets (data triangulation) denotes the use of multiple (qualitative or quantitative) data sets which may be obtained with different data collection methods or through use of the same method with different sources (e.g. self, informants, other sources in a setting) or at different times.

- Multiple investigators (investigator triangulation) stands for the collaboration among different researchers in the form of team work or partnerships to bring different viewpoints to the research, which may influence the way data are analyzed and interpreted.

- Multiple theories (theoretical triangulation), which refers to various theories researchers may employ during the course of their research for determining different possible hypotheses to be tested on their data.

The advantages of triangulation are increased validity and the congruence of research findings, 'by providing more detail, multi-layered and multi-dimensional perspectives of the phenomenon under study are uncovered' (Kopinak, 1999: 171). However, several authors (Silverman, 1985; Fielding and Fielding, 1986; Bryman, 1992; Hammersley and Atkinson, 2003) have expressed criticism of the triangulation strategy. Bryman outlined three issues explaining why the integration of qualitative and quantitative methods 'for the purposes of triangulation is by no means as unproblematic as it first appears' (1992: 63).

First, different methods, especially if they span qualitative and quantitative research, have different strengths and weaknesses; thus they may not be tapping into the same things even when they are apparently examining the same issues. Second, how should researchers regard their results when there is no correspondence or even a conflict between their findings from different methods of data collection? This directly leads to the third issue about how to determine what the conflict in results actually comprises. Bryman further indicated that in some instances 'there is a thin line between saying that the two sets of results are inconsistent' (1992: 65) and saying that one set of data supports and confirms the other (e.g. the qualitative data qualify the quantitative).

Others have questioned whether the convergence of research results is indeed an indicator of increased validity (Fielding and Fielding, 1986, Bryman, 2000: 134; Hammersley and Atkinson, 2003: 199). Even where 'the results tally, this provides no guarantee that the inferences involved are correct' (Hammersley and Atkinson, 2003: 231). Bryman notes that although there may be 'mutually reinforcing' (2000: 133) and convergence results, this may be a sign that both results are 'biased in the same way, so that the convergence between the two results can be the result of the fact either that both results are right or that they are wrong in the same way' (Erzberger and Kelle, 2003: 461).

Complementarity

Complementarity creates opportunities for a more holistic approach to measurement, analysis and interpretation. As an illustration, we refer to Komarovsky (1967) who appreciated the complementary combination of the qualitative method for clarification in her quantitative study of marriages:

> "One of the functions of the case studies is to suggest explanatory clues for empirical generalisations derived by quantitative techniques. We encountered in recent researches correlations that have mystified their discoverers because no rationale could be found for them (emphasis added)" (Komarovsky, 1967: 349).

The basic idea of the concept of the complementary use of qualitative and quantitative methods is to use 'each approach in relation to a different research problem or different aspect of a research problem' (Brannen, 1992: 12). By contrast with triangulation, where different sets of data are expected to be consistent and congruent with each other, in the case of complementarity the data sets are expected to diverge in order to capture a broader view of the phenomenon under study.

In research design, often the qualitative phase to generate the hypotheses and theory is then verified later on in a quantitative (confirmatory) section of the study. The quantitative part could be used in the generalisation of qualitative findings. As Campbell and Holland (2005: 5) note, the quantitative part stands for a more descriptive, analytical breath of coverage, while the qualitative part offers power in terms of the richness and depth of information.

Results from one method can be extended by using another method. Quantitative methods focus inquiry on a discrete set of variables to address a specific research question or hypothesis. Qualitative inquiry opens up the field of investigation by recognising the broader but interconnected complexities of a situation. Thus, each type of method has advantages and can extend, in certain ways, our understanding of a researchable problem.

This extension of one method with another occurs when the researcher sequences the two types of methods, either qualitative first as exploratory, followed by quantitative as explanatory, or vice versa. Further, many researchers begin the qualitative part first if the problem has not been explored much in the literature. In this case, the researcher develops quantitative measures from a qualitative exploration because measures are not currently available, extant measures do not represent populations being studied, or the topic has not been explored much by other investigators (Creswell, 1999: 460). Problems arise if a questionnaire design is not grounded in qualitative research, or if generalisations are made from qualitative findings (Lewis, 1997).

The main mixed methods designs in common use are as follows:

- Sequential explanatory design, the most straightforward of the six main designs. In the first stage of a study, we conduct the collection and analysis of quantitative data, followed by the collection and analysis of qualitative data. Priority is usually given to the quantitative part and the two methods are integrated during the interpretation phase of study. The typical purpose is to use the qualitative results to assist in explaining and interpreting the findings of the quantitative part.

- Sequential exploratory design. This is similar to the first design except that it is characterised by an initial phase of qualitative data collection and analysis, followed by the quantitative part. The priority is given to the qualitative part. While the first model is better at explaining and interpreting the relationships, the primary focus of this design is to explore the phenomena. As Morgan (1998) suggested, this design is useful for testing elements of an emergent theory resulting from the qualitative phase and can also be used to generalise qualitative findings to different samples.

- Sequential transformative design has two distinct data collection phases, with one following the other. In this design, both methods can be used first and priority may be given to either method, too. The results of the two methods are integrated during the interpretation phase. Unlike the first two designs, for which the theoretical perspective is not a must, this design must have a theoretical perspective to guide the study. The aim of this theoretical perspective is more important in guiding the study than the methods itself. The purpose of this design is to employ the method that best serves the theoretical perspective.

- Concurrent triangulation design is used when a researcher uses two different methods in an attempt to confirm, cross-validate or corroborate findings within a single study. Both qualitative and quantitative methods of the study are used simultaneously, and equal priority is given to both methods. The results of the two methods are integrated during the interpretation phase.

- Concurrent nested design is useful when qualitative and quantitative data are collected simultaneously but, unlike the previous design, this one has a predominant method that guides the project, with the embedded method addressing different questions from that addressed by the dominant method. The data collected by the two methods are mixed during the analysis phase of the project. This design is often used to gain a broader perspective on a phenomenon by using different methods as opposed to using the predominant method alone. For example, a primarily qualitative design could embed some quantitative data to enrich the description of the sample participants.

- Concurrent transformative design, like sequential transformative design, is guided by the researcher's theoretical perspective.

2.6   Analysis and reporting

No matter how appropriate the research design, how thorough the interviews, how proper the statistical analysis, how representative the sample, how carefully crafted the questionnaire or the questions, how stringent the quality control on the data collection process, in the end the real value of a research project depends on how it manages to communicate the results to those that can use them. Often a distinction is made between pure and applied research. This distinction is in many ways misleading, particularly in the case of research whose focus is on children and their experiences on the Internet.

Researchers are thus advised that their research results, no matter how theoretically pure they are intended to be, might be used as a basis for decision making or policy development. The aim of scientific reporting is to inform other researchers and the general public of the research findings and their trustworthiness. It has perhaps never been so easy to publish material both in print or electronic but, at the same time, it is increasingly difficult to be heard in the ever growing chorus calling for attention in the public sphere (McNair, 2006).

With the rise of qualitative methodology researchers have become increasingly aware that scientific reporting is in itself a communicative act which is not simply about re-presenting the views of interviewees or results from cross-tabulations, accompanied by the researcher's own viewpoints in the form of interpretations (see Kvale, 1996).

Many will undoubtedly have heard the phrase (quoted from Disraeli) that there are three kinds of lies: lies, damned lies and statistics; the implication is statistics can be used to confuse, distract and even change the truth. This is of course true up to a point. But it is also necessary to keep in mind that it is not the statistics that lie but rather it is the researchers who consciously or unconsciously provide statistical information which is confusing, misleading or even wrong.

At least a part of the problem with statistics can be attributed to the false equation of data analysis with statistics (Hartwig and Dearing, 1979). And although data analysis is a process meant to break down data into its important component parts, it is perhaps too often taken to mean the analysis of data by means of statistics alone. This notion has two possibly severe consequences. First, it tends to downgrade the importance of visual display. Instead it leads to the belief that a statistic (such as a mean or regression coefficient) is harder or more solid than graphical representation of the data. The second problem is the confirmatory nature of much statistical analysis. Most of the time statistical analysis is designed to measure to what extent the data collected confirms a previously defined hypothesis. This sometimes means that the data are not explored to see what other patterns might exist (Hartwig and Dearing, 1979).

Computer technology has made graphical representation of data increasingly easy and charts have almost become the lingua franca of the information age. This can be marked in scientific reporting where graphics and colour is used more and more to present ideas and research findings. But though graphics are a powerful means of conveying information, they must be used properly. Gerald Jones (2000) points to several things which are to be used with great care when producing a graph, including correct labelling, 3D and orientation.

3. Researching children

3.1 Research 'with' or 'on' children

It may seem easier to treat adults – as parents or carers, teachers, clinicians, content producers, designers and educators – as reliable informants on children's lives, desires, interests and actions. There are fewer ethical issues, recruitment is cheaper, and so forth. Yet this use of adults as proxy informants on children's lives often produces misleading accounts, and research that works directly with children can tell a different tale.

It must be recognised as problematic, even if convenient, to work with adult-originated or official accounts of children's experiences – parental accounts of media use, school's provision of test scores (e.g. achievement, reading) or teachers' reports (e.g. of concentration, aggression, sociability) without balancing this with alternative methods (Van Evra, 2004). The importance of working directly with children, when children are the focus of the research, cannot be stressed too highly. Hence there is a widespread call to give children a 'voice' in social research (Buckingham, 1993; Mahon, Glendinning et al., 1996; Morrow and Richards, 1996; Greig and Taylor, 1999). This results in the expectation that researchers should develop methods that allow children to participate as active agents and 'key informants' (Darbyshire, Macdougall et al., 2005), expressing their own interpretations and thoughts, rather than solely relying on the adult interpretation of their lives.

This shift is marked by the prepositional shift from working 'on' to working 'with' children. The distinction relies on differences in perception of children as the objects of the research or the participants in the research process (Christensen and James, 2000; Neill, 2005). Theoretically, this is underpinned by recent sociological research of childhood. These sociological approaches to children, childhood and youth assert the agency of children, albeit shaped and defined by their social and cultural contexts (c.f. James et al., 1998). Qvorturp (1995) characterises the new sociology of childhood as emphasising:

- the structural aspects of childhood, with its dynamics and determinants, rather than a naturalistic conception of the individual child and its development;

- the relational - neither 'the child' in isolation from others, nor 'the household' as sufficiently descriptive of its members, and these relationships are worthy of study in and of themselves;

- the present - children as people now, their relationships and cultures considered worthy of study in their own right, rather than forward looking - children as merely persons-to-be and so as indicative of the adults they will become;

- the normal or everyday rather than the atypical or problematic.

This approach has implications for the design of research with children, emphasising the importance of including everyday contexts within the scope of the research (and not, for instance, bringing children as 'subjects' into a laboratory or neglecting to note the characteristics of their household or neighbourhood when surveying children). It also tends to favour the qualitative over the quantitative (for the former is recognised as preferable in giving children a voice to express themselves and their concerns).

In stressing children's agency within a structured, often intrusive or highly determining adult context, the new sociologists of childhood argue that children's lives are often lived in the interstices of adult spaces or timetables, and that children may be expected to circumvent, evade or subvert adult expectations or norms for their behaviour. The researcher must thus design their methods in such a way that such micro-tactics of everyday life are recognised (de

Certeau, 1984; Corsaro, 1997). Children are, after all, playful, sometimes silly or naughty, often serious and forthright. The point is for our research methods to find the meaning in their actions.

3.2 Adult researchers, child informants

The injunction to work with children directly produces its own methodological challenges. There is an inherent asymmetry in power (status, control, knowledge) when adult researchers study child respondents. The dangers are varied, from occasioning anxiety or misunderstandings among children, invading children's privacy or abusing their trust, exacerbating social desirability biases, obtaining misleading information, reinforcing adult preconceptions of the child's perceptions, and more.

Considerable attention in the methodological literature has been devoted to developing strategies to address this. One helpful strategy is to deliberately and overtly assign an 'expert role' to the child (Yarrow, 1960). Another is to involve children as interviewers of their peers or younger children. Most commonly, researchers favour two solutions – the first is to pay careful attention to the research encounter (its justification to the child, the mode of address and methods used, the research setting and the ethical framework employed); the second is to employ multiple methods so that different insights and information can be triangulated to produce a rounded understanding of the child's situation as regards the study focus or question.

Children should get the impression that they are taken seriously and be given the opportunity to explain their own understanding of their life-world, all of which requires a lot of empathy and sensitivity on the part of the researcher (Paus-Hasebrink, 2007). Only then can the researcher facilitate the confident, careful and free expression of thoughts and feelings on the part of children.

3.3 Age, stage and development issues

Not all children are the same. Clearly a five year old differs from a twelve year old or a seventeen year old in ways that matter for research methods as well as research substance. But how shall we conceive of this difference? And what implications does it have when researching children and young people?

Piaget's developmental psychology has provided the dominant psychological account of child development for many decades, with the focus on the individual child's cognitive development in "ages and stages": specifically, the preoperational stage (ages 2-7), concrete operational stage (ages 7-12) and formal operational stage (age 12+). These are defined in universal terms, applying across cultures and contexts, perhaps the most contested aspect of his theory, though also contested is the assumption that all (i.e. normal) children pass through this invariant sequence of stages (and their various substages) in order to achieve mature adulthood (Piaget and Inhelder, 1969).

Followers of Piaget who study children and media pay particular attention to the ways in which media facilitate the child's cognitive development as they advance from one stage of understanding to the next. They have also examined the process by which children develop an understanding of the 'reality claims' of television. They propose stages of progression towards a mature adult understanding (Dorr, 1986) and exploring the confusions about modality that, productively, stimulate the move to the next stage (Hodge and Tripp, 1986) and, ultimately, to adulthood. An alternative approach, stressing the social and cultural importance of learning, was developed by Piaget's contemporary, Vygotsky, who argued that child development is mediated by social interactions with others, so that the child gains not only cognitive sophistication but also the shared symbolic knowledge of its culture and, thus, of him or herself (Vygotsky, 1934/1986).

Research on children's engagement with media either follows this standard developmental psychology account (Dorr, 1986; Gunter and McAleer, 1997; Valkenburg, 2004; Van Evra, 2004), sometimes with a more socio-cultural turn (Hodge and Tripp, 1986; Palmer, 1986) or it problematises child development as a social construct (Buckingham, 1993; Nightingale, Dickenson et al., 2000; Oswell, 2002). The former group of researchers treat children of different ages differently in practice, though they rarely theorise this in methodological terms (generally simply describing how methods are adapted for different age groups). The latter group of researchers is sensitive to the ways in which society (parents, school, media, culture) position children of different ages differently, but they do not ascribe observed age differences in their activities or accounts to differential cognitive or social competences, again leaving unclear how children of different ages should be researched differently and why.

Similarly, Van Evra (2004) observes that a common flaw in research with children is addressing the child as more mature, or more competent, than they are – overestimating their linguistic skills, for example, or underestimating the gap between competence (what they can really do) and performance (what the researcher has been able to observe them doing). A range of principled or commonsense rules of thumb are evident in published accounts of research. These include the following: don't ask for time estimates from children under 8 or 9; favour drawing, role play and observational methods over interviews for children under 6; focus groups with teens are strongly marked by social desirability biases; and so forth. It is worth noting that these age transitions tend to mirror the transition points in Piaget's stage model, with key adjustments in methods being made for respondents older or younger than 7-8 years and older or younger than 11-12 yrs.

In any research with children, including in relation to media and the internet, age differences are consistently the most important factor differentiating among findings. Reporting findings by age, charting age trends or comparing age groups is expected by any research user, and it would be the absence of age differences, not their discovery, that would be counterintuitive, if and when it occurs.

It is commonly if unfortunately the case that age differences are noted but not interpreted. For some, a cognitive development account is appropriate (e.g. age differences in judging what is 'real' or trustworthy in media content). For others, a social explanation may be more appropriate (e.g. age differences may reflect the significant transition from primary to secondary or high school, or, perhaps, different parental treatment of children versus teenagers). Problematically, sometimes the differences may be artefactual, reflecting the different methods used for participants of different age groups (e.g. in adapting an interview schedule for different age groups, the question meaning may be altered).

3.4 Children – reliable informants?

A strategy of valuing and including children's voices must be accompanied by an analysis of when and how children may be intimidated in research (especially when interviewed by adult researchers), subject to social desirability biases, ignorant of their own motives or behaviours, or wilfully misleading – all factors that undermine the reliability of data obtained from children.

While recognition of these factors is important, as is designing research to minimize sources of unreliability, it may be that these biases are no greater than for adults. Parents, for example, are subject to considerable biases (social desirability, third person bias, etc) when reporting on their children's media use; teachers also may provide a partial and overly positive account of children's activities in class.

Further, the notion of children as unreliable must be traded against the benefits of direct questions to children. Who else can report on what a child does with media when alone, or in their bedroom, or how they feel about violent content, or what pressure they feel from their friends? A useful principle, therefore, is to assume that each child is capable of providing valid and insightful information, provided that s/he is approached appropriately and that the data are interpreted carefully (Graue and Walsh, 1998; Livingstone and Lemish, 2001).

3.5   Ethical issues in researching children

Common adult perceptions of childhood as a "quarantine period" (see Ennew, 1994), a good, free and happy stage of life in which children are kept in a space away from the nasty aspects of adulthood, including sex, violence and commerce, poses problems to researchers who wish to collect information, for example, about children's encounters with potentially harmful material on the internet. Various aspects of the child-adult relationship has in general become increasingly regulated (Pilcher, 1995), and there are cultural differences in ideas about the age at which it is appropriate for children to encounter, or be asked about, certain experiences.[21]

A respect for children's views and a concern for their safety demands sensitivity to ethical issues in conducting research (Morrow and Richards, 1996). As King and Churchill (2000: 710) comment, ethical principles for research with children 'do not always yield final or uncontroversial answers, but they do serve to clarify and justify decisions'. Considerable efforts by social scientists have contributed to an emerging consensus regarding good practice in this area. Standard ethical guidelines will include, first and foremost, adhering to the research ethics requirements of one's country, institution, and/or discipline.[22]

Typically these will include guidelines on obtaining informed consent from children (Holmes, 1998), a task that depends on the age of the child, as well as obtaining consent from parents (or teachers). Although legally, obtaining consent from parents/carers alone is considered sufficient, it is surely the case that if one is to question or observe the child, obtaining consent from the child is practically and morally appropriate even if not legally necessary. Westcott and Littleton (2005) stress the importance of negotiating gatekeepers in accessing children and obtaining consent from children.

Children should be clearly aware that that they may drop out of the research whenever they wish – even during an interview or when completing a questionnaire – or that they may omit answering questions they feel uncomfortable with. This is very important when researching online risks, private or sexual matters. Other key ethical issues include anonymity and/or confidentiality of the treatment of the data, the avoidance of deceit, debriefing participants about the purpose and outcome of the research, etc.

In addition to issues of children's and youths' individual rights, a further ethical responsibility arises from the power dynamics of the research process, namely that of reciprocity. Gaining information from child participants without giving something in return reinforces an underlying sense of the adult researcher's privilege. To redress this, reciprocity can take place on several levels: the interview itself can emphasise the empowerment of the child informant by expressing a genuine interest in them, without judgement, betrayal or anger regarding anything they reveal; reciprocity may also occur in terms of the consequences of the research, favouring action-oriented research that puts children's best interests at the centre

Of particular important in research with children is the question of what is revealed about them to their parents or teachers – inadvertently, deliberately, or on request from the parent/teacher (this can be especially difficult for the researcher if the adult is the gatekeeper to access to the child).[23] Last, particular care must be taken in reporting data that includes identifying features (a photograph, name of the school, excerpts from chatroom or IM conversations). Indeed, particular ethical issues arise for researching children's online activities (see later).

3.6   Adapting or extending existing methods of research

Do the challenges of researching children mean that we can, or cannot, simply apply 'adult' research methods to work with children? Do we need a whole set of different methods or some modifications of 'adult' methods are sufficient?

Some argue (e.g., Thompson, 1990; Woolard, Repucci, Dickon et al., 1996; Hall, Stevens et al., 2001) that children as research participants are more vulnerable than adults in regard to cognitive and emotional development, level of autonomy and dependency on family influence. Others (Christensen and James, 2000; Neill, 2005) argue that there is no need for a specific set of methods to approach children, as they prefer to see children as competent and autonomous social actors. Is there a middle way between these two extremes (Punch, 2002; Greene and Hogan, 2005)? In determining how to treat child informants, depending on their age and the research topic hand a reflexive and self-critical approach is required of the researcher.

In seeking to adapt existing methods, to a greater or lesser degree, there have been several areas of focus regarding research with children and their media/everyday life (Greene and Hogan, 2005; Punch, 2002; Paus-Haase, et al., 2001).

Research setting

The location of the research matters to children (and, no doubt, to adults), and should be familiar to the child. Any research interaction with children should allow sufficient time for 'warming-up' and to develop a personal contact with the children. Children must not get the feeling that they have to give "right" answers. Moreover, the research period should be varied: Children's concentration span makes for the need for variety in approach (mixing methods, shifting focus, introducing varied materials). Not only are multiple methods preferable but so too are multiple interactions: often, a single meeting is not sufficient in interviews with children, and Rogers et al. (2005) propose a series of meetings that enable to build up a relationship based on honesty and respect of a child.

A key question for children concerns the adults that may overhear, or discover about, the research process. Often, interviewing children at home permits direct observation of their interaction with siblings and parents, as well as evidence of the dispersal of media goods around the home; but it may restrict the child's freedom to report on parental rules or values regarding media, and they may feel much freer to discuss this at school. At school, however, the gaze of teachers and peers is considerable, instituting another kind of social pressure. A child may be shy at school but open up to the researcher at home. A child at home may brag, only to be put in the place by their peer group who see through any boasting quickly. Children surveyed in the classroom may worry that teachers will see their answers but be confident that parents will not. And so on.

In short, the advantages and disadvantages of different contexts must be both considered and integrated into the analysis of findings.

Age-appropriate language

Whether phrasing survey questionnaire items or interview questions, language matters. The interviewer has to adapt his or her language to that of the child informant. Difficulties in communication between researcher and child make indirect methods preferable to direct questioning, including assigning the child an 'expert' role, using recognition-based rather than recall tasks, including observational methods, and so forth.

Reliance on verbal communication requires caution, and may require adjustment of research instruments (e.g. the production of multiple, age-appropriate versions of the same questionnaire), or building in checks on interpretation of key terms in an interview schedule, ensuring follow-up questions to double check on reported actions or attitudes, etc. Developmental trajectories matter more for certain types of questioning over others (for example, time estimates of media use).

It has long been argued that the processes of language development mean that what children say – their 'performance' should not be taken as a straightforward read-out of their 'competence', for children's production of linguistic utterances may fail to represent, sometimes over-representing and sometimes under-representing, their understandings and feelings (Buckingham, 1991; Lemish, 1997).

More specifically, children may use different words for media goods and contents than adults do, and identifying these terms is not only vital to obtaining valid research findings but also provides a useful 'way-in' to children's own perspectives on media.[24] Similarly, for children, the cognitive, social and emotional aspects of response to media are intertwined and not easily separable (so methods must reflect this, leaving disentangling of findings for the analysis stage). In another example, it is becoming apparent that the online risks of primary concern to children (e.g. bullying, viruses, spam, hoaxes) differ from those that concern adults (e.g. pornography, violence, paedophiles, race hate) – the danger is that an interview schedule can impose adult concerns on the child and fail to discover the child's own concerns.

Nonverbal (cartoons, drawings, puppets, dolls, models, etc) or alternative means (role play, games, observation, peer interaction, thinking aloud) can also be valuable, especially with younger children (cf. Ammons, 1950, Paus-Hasebrink, 2007), though the task of interpretation and reporting may be harder (Livingstone and Lemish, 2001).

Interviewing strategies

Whether in individual or focus group interviews, researchers have developed a range of techniques for working with children. In the field of forensic psychology, the use of children as witnesses has generated some careful guidelines for interviewing very young children (Tang, 2006). These include using visual retrieval aids for recall, asking wh questions (who/what/when/where/why) rather than yes/no questions, and open-ended rather than closed questions, and explaining that 'I don't know' is an acceptable reply (to reduce response biases).

Faller (2003) distinguishes several strategies for individual interviews, including cognitive interviewing, narrative elaboration and segmentation. In the first instance, after a cognitive reconstruction of a specific event, a child is asked to tell everything she or he can remember from that specific event. In the narrative elaboration strategy, a child is trained to use cue cards (pictures) which serve as triggers in the story telling process. The third strategy's specificity is the segmentation of events that a child is asked to comment on in a narrative way.

After the interview has been set up, children should be treated as competent partners in conversations. They should be given the opportunity to explain their responses in the interviewing process. As active participants, rather than merely respondents, they jointly create the roles of 'teller and told' (Westcott and Littleton, 2005). The notion of agency should be interpersonal in the processes of joint-meaning making throughout the interview, emphasizing the process of negotiation and re-negotiation of emerged meaning (Light and Littleton, 1999).

Focus groups can be conducted in informal peer group settings as well as in class situations (see: Lewis, 1992; Horowitz et al., 2003; Darbyshire et al., 2005: 421). Guided and moderated discussion amongst child informants can uncover specific concepts and feelings in the peer culture of interest to the researcher that are not necessarily spoken about in everyday settings. They can also be employed for screening, by which one can begin with a large pool of participants from which specific children can be selected for a subsequent research step (for example, in-depth interviews).

Beyond this, focus groups can be used to examine the children's preferences, topics and favourite characters in the framework of their peer-related (medial) activities. Moreover, the group situation in a class context allows for tracing the topics that children of the same age negotiate about and how they communicate about their media interests, their favourite way of using the internet and specific ways in which they deal with it. Group interviewing techniques are a particularly good method for gathering data of media reception. Often, media use and content is selected, assigned significance and interpreted through social interaction within what Radway (1984) calls 'interpretative communities'. The dynamics of children's peer groups can be at least partly captured and reproduced within focus groups.

Morgan, Gibbs, Maxwell, and Britten (2002) list the following strategies for focus groups with children: care in recruitment and composition of the group (4-5 children is probably best, as is separating boys and girls for older children); achieving a balance of power that enables spontaneous contributions; setting the scene, to be informal and participative, specifying ground rules, structured warm-up activities; managing space and time by breaking up the session, varying the activities, arranging the space; accessing children's meanings through appropriate prompts and probing; use of an alternative personality (e.g. a stuffed toy or cartoon character to take the place of the interviewer); pen and paper exercises, especially for drawing or for producing a shared image; role-playing scenarios with dolls, toys or the children themselves; observing the group dynamics, tensions and sensitive moments (see also Irwin and Johnson, 2005; Lewis,1992).

Specialists in working with children employ the above strategies in both individual and group interviews for children as young as three or four years old (e.g. see Irwin and Johnson, 2005).

Developing specialist methods

Creative methods for research with children, which rely on children's imagination, include creative writing and drawing, telling or writing stories, writing poems, drawing, and painting, taking photographs, making videos or films and role plays (Christensen and James, 2000). Such methods can serve as constructivist tool to assist research participants to describe and analyse their experiences and give meaning to them. The aim is to facilitate the reflection, debate, argument, consent, to stimulate the articulation of multiple voices and positions, and through the research process, to lay out the foundations for empowerment (Veale, 2005).

Epistemologically, creative methods fall into a paradigm of participatory research[25], which is an integral part of the reconceptualisation of children as social actors with their own cultures. On this view, the power, status, social and economic differentials between children, as between adults, result in multiplicity of 'childhoods' that need to be understood (Veale, 2005). Also an increased awareness of children's agency in social life has led to critical examination of more experimental methods. Creative methods enable maximisation of children's abilities to express themselves at the data-gathering point (Punch, 2002). However, creative methods can be also used outside the participatory paradigm and combined with other methods, thus:

- Interview (e.g. using a hand puppet for younger children): Children are not used to interviews, so it is important to create a confident and fearless atmosphere. A hand puppet can be a perfect medium to engage with the child and to adjust to its language.

- Participative observation, e.g. in combination with thinking aloud methods: These methods enable to undergo how children interact with each other while using media/internet. Thereby emphasis can be placed on how a single child deals with the internet in the context of using other media or the exposure of a social system, in which children are growing up (e.g. family, nursery school, school).

- Experiments are favoured when dealing with very young children, who are not able to verbalise their experiences and mindsets. The aim is to control all variables, which have an influence on how children are dealing with the internet, as all-embracing as possible in order to uncover the influence of media content/products, social settings and socio-demographic factors.

- Children's drawings: The advantage of children's drawings is the possibility to show aspects, which cannot be verbalised. They provide an insight into the visual and intellectual capabilities of children, the emotions while they are drawing as well as their stage of development. In order to interpret children´s drawings adequately it is advisable to consider also their own explanations.

- Interviews with parents and educators: The family as well as schools and nursery schools have an important influence on how children are dealing with the internet. With respect to this the concepts of media education of parents and educators are of great importance, too. In addition they can give further information on the stages of cognitive, social and emotional development of children.[26]

The value of multiple methods

Understanding children's experience, attitudes and behaviour requires a multiplicity of methodological approaches (Greene and Hogan, 2005). Often, whilst researching children's life, we aim to look at complexities of their experiences and patterns of their behaviour. Experience is an interpretative category and mediated through textual, discursive or visual accounts. Only by methods that can capture its richness, individuality and meaning it can be comprehensibly approached. On the other hand, if a researcher is interested in communalities and differences in children behaviour patterns they need to use appropriate statistical methods. Punch (2002) proposes that one way to address a diversity of childhoods and children experiences is to use a wide range of different methods and techniques.

It seems almost intuitively appealing to imagine that a range of methodological strategies would capture a broader and deeper range of children's perceptions and experiences than a reliance on a single technique (Darbyshire, Macdougall et al., 2005). Each method tends to provide only a partial account and may require to be supplemented by other methods. Further, the variety of methods can itself stimulate and maintain the interest of participation (for details, see Lobe, 2006). For example, Van Rompaey et al. (2006) report a detailed and dynamic method for understanding how ICTs are integrated into family life which integrated a range of approaches, from storytelling to co-designing technologies, from using digital cameras for children to interview each other to interviewing them about the process and its results.

When children are in the focus of research the methods are predominantly those that involve questioning and observation (see Paus-Hasebrink, 2007). Questioning – especially with the help of main thread interviews – proves to be the only direct approach to gain insight into the child's self assessment even though it is quite demanding for the researcher. However, studies employing different methods are not *per se* preferable to those only relying on one method. It usually involves more than twice as much work, particularly if the researcher's goal is not just to use 'each separate method effectively but also combine them effectively' (Morgan, forthcoming). Therefore, researchers should follow the research problem and employ methods that enable to solve that problem most effectively, even if this can be done only by a single method.

In designing research on the parental mediation of the domestic internet, for example, it is preferable to interview both parents and children, directly comparing their accounts and attending to the discrepancies as meaningful, rather than dismissing them merely as error (Livingstone and Bober, 2006). In designing research on the peer group, it is preferable to interview or survey several members of the same friendship network, to obtain multiple perspectives on the topic. In designing research on children's private media use – say, in their bedroom – effective strategies include combining interviews, observation, and a record (written, photographic) of the room itself (placement and prominence of media and related goods – books, dvds, posters, etc).

For example, in the SAFT project (http://www.saftonline.org/) and the UK Children Go Online project (http://www.children-go-online.net/), children and parents gave different answers to questions of the incidence of risk (children report more online risks than parents) and to questions of domestic rules (parents report more rules about internet use than children). If only one of these two data sources had been available, or if one sought to compare one project that asked only children with another that asked only parents, the results would be difficult to interpret. A plausible resolution is to take the children's and parents' answers as marking the upper and lower bounds of a phenomenon.

4. Researching online technologies

4.1 New challenges in researching 'new' media

Researching the use of online technologies, including researching the online environment itself, and its relation to the offline, changes the parameters of research methods in a manner yet to be fully explored. As the research literature on the internet is now exploring, the conditions of respondent privacy, research ethics, method timing, anonymity, sampling, and so forth are all altered by the internet in important ways (Jankowski, 1999; Hine, 2005; Lobe, 2007). Researchers are responding in either of two ways. The first strategy is to apply and, where necessary, adapt tried and tested methods to the online context. The second is to develop new methods, capitalising on the characteristics and functionality of the online context itself. The result is both continuities and discontinuities between research on traditional and new media technologies.

Researchers also face the dilemma of whether to position themselves, as the researcher, online or whether to approach their research subject offline, albeit in order to inquire into online activities. For example, the researcher who visits children in schools to research their internet uses takes a very different, and more established, route than does the researcher who observes the messages posted in chat rooms or social networking sites. Each must make key decisions regarding sampling, privacy, ethics and so forth. Each also faces different limitations – the classroom based project is subject to social desirability biases, for example (children may not in reality do online what they claim when asked); however, the website based project faces difficulties in knowing anything about those who post online content (neither their demographics nor motivations can be discerned, nor too the consequences of their online actions in everyday life).

Before these and related issues are discussed below, two warnings are apposite:

- Researchers should avoid polarising the online and offline environments. A growing body of research suggests that people reproduce online many of the practices already familiar offline (e.g. patterns of gender or social class; Slater, 2002). It is also now clear that young people move almost seamlessly between the online and offline, blurring the boundary and so undermining any sharp contrast between the two (Livingstone, 2002). To be sure, the online environment appears to intensify some features of the offline (including some of the risks facing children), it complicates others (e.g. the nature of privacy or anonymity), and it enhances the speed, convenience, accessibility and connectivity of many social interactions. But it remains 'of this world', not radically new and not, therefore, beyond existing knowledge or method.

- Researchers should avoid technological determinism in framing and addressing research questions. Questions that treat technological change as the starting point of inquiry, asking about impacts or effects of new technologies, fall into two traps – they treat the technology as pre-given and fixed in their significance, failing to recognise that it has been socially shaped through the economic, political and cultural processes of innovation, design and marketing (Mackenzie and Wajcman, 1999; Mansell and Silverstone, 1996); and they blind us to the ways in which technologies users – ordinary people in their everyday lives – appropriate technologies, giving them meanings in accordance with their local circumstances or particular life position, exploiting the interpretative flexibility in any object or text (Bijker, Hughes et al., 1987; Haddon, 1988; Berker, Hartmann et al., 2006).

4.2 Understanding change

This is not to say that nothing has changed. Changes in media have been looked at from diverse and sometimes even opposing perspectives (Erstad, 2003). On the one hand,

pessimistic views claim that we are moving into an era of increasing fragmentation and atomization, in which notions of common culture, the public sphere and participatory citizenship are practically disappearing and consequently, the public citizen has become no more than a private consumer controlled by the consciousness industries. Others argue that new media technologies are, instead, a means for the empowerment of ordinary people. Here the emphasis is placed on the transformation of consumers into producers and the consequent increase of democratic power of communications which enable new voices to be heard and new forms of identity or subjectivity to be created. Under this perspective new media liberate individuals from established constraints, hierarchies and cultural forms.

This complexity obliges us to as ask ourselves how these changes can be best understood. On the one hand, one can think of these changes as a mere matter of *proliferation* (Buckingham, 2000) implying that media like the television and more specifically, the domestic TV screen have become the point of delivery for other media. On the other hand, changes in media environment can be perceived as a process of *convergence* between information and communications technologies resulting basically from the advent of digital media and the Internet. The convergence of these developments, it has been claimed, will increasingly obscure the distinctions between linear broadcast media like television and 'narrowcast', interactive media like the internet.

Accounting for the changes in media environment implies looking at the relationships between technologies, institutions, texts and audiences (Buckingham, 2000; Bruce and Hogan, 1998; Hawisher and Selfe, 2004). Claiming that media changes are the consequence of any of these dimensions in isolation would be misleading and therefore, in order to better grasp the evolution from mass media to interactive media it is important to look at the inherent relationships between each of these dimensions as a whole.

4.3   Extending familiar methods to the online context

The internet environment, as a new space for and of data collection provides a number of 'online' venues and places, including various digital formats such as emails, chat rooms, web pages, listservs, various forms of 'instant messaging', social networking interfaces and platforms, blogs, audio and video exchanges (such as YouTube, MySpace etc.). The enormous variety of ways to approach the Web as an object of research poses some important methodological challenges, especially in relation to methodological issues. Wakeford (2004) argues that these challenges concern on the one hand long-standing debates in methodology, and on the other hand, the challenges posed by new electronically mediated research. "In thinking about which methodological frameworks we have at our disposal to study the Web it is advisable to bear in mind that what is considered to be legitimate methodology is itself always in flux" (Wakeford, 2004: 36).

According to Mann and Stewart (2000: 5), the use of the internet for research purposes should not only be 'concerned with the study of online behaviour … it [should be] also concerned with using computer-based tools and computer-accessible populations to study human behaviour in general'. Therefore, it can either be applied to administer the research as data collection tool or the most appropriate medium for research to address the issues of Internet-based communication and computer mediated social interaction[27], which clearly 'call for a different methodological orientation on the part of the researcher' (Denzin 2004: 2). As Hine (2005) stresses, there are only few researchers in the social sciences and humanities who could not find some aspect of their research interest manifested on the internet. Researchers may thus alternate between online and traditional research environments, employing either online or traditional methods respectively. Denzin (2004: 2) uses the operative term 'hybridity' to denote such research practice.

To study the 'Internet arena', as Van Selm and Jankowski (2006: 435) refer to the virtual research environment[28] on the Internet, social scientists face the challenge of choosing the most suitable research approach. The burning question that arises is how to obtain the most suitable research approach. Is a simple application of existing research practices from more 'traditional' environment sufficient, do we at least have to pursue with some modifications of

'traditional' methods or do we need a completely different set of research techniques to tackle online research? Van Selm and Jankowski (2006: 435) distinguish three positions with respect to this issue, which could be placed on a continuum where, on one extreme, there is no need for new inventions in methods, and on the other extreme, a quest for a whole set of new methods is raised. Van Selm and Jankowski assume a middle position, which advocates a joint-benefit approach, upgrading 'traditional' methods virtues with principles and tools for coping with online environment.

Therefore, online research methods are computer-mediated research tools and techniques employed in the online environment, mainly used for data collection purposes. There have already been wide-ranging modifications of questionnaire surveys, qualitative interviews, focus groups and ethnographic research to fit in to online environment. Essentially, online methods are facilitations of these 'traditional' methods, using infrastructure provided by Internet (Chen and Hinton, 1999: 2).

4.4   Online methods

The table below shows the way methods in a research have changed according to the transition from traditional to new 'online' methods.

Research conducted by methods	*Adaptation of existing methods*	*New methods*
Offline research	1) User-centric methods: including interviews, focus groups, and survey methods about how use of the Internet fits into everyday life	3) Server-centric methods: Loggings and metrics to chart where people go online
Online research	2) Online surveys Online focus group and in-depth interviews Online ethnographies Content analysis/discourse analysis of online material	4) Cookies Automated analysis of websites/data collection Mapping online spaces Mapping traffic Data mining (e.g. Amazon)

As seen, there are four possibilities of data collection. First, a researcher can conduct an offline research, asking their informants about new media usage and forms of practices that internet influences in everyday lives. In this case, we would typically use familiar methods such as in-depth interviews and focus groups for more insight and depth whilst using survey methods to detect the patterns and beliefs underlying the behaviour.

However, as the Internet has become a space for new social and cultural formations (Hine, 2000), these opens a whole new set of opportunities for sociological and anthropological methods that ease many constrains previously experienced by using traditional research methods (Christians and Chen, 2004: 19). This, as we see in the second cell of the table, moves a researcher towards the usage of online methods, which are (as discussed above) at this stage still only an adaptation of existing methods. Whilst online quantitative methods are more appropriate for addressing structural analyses and comparisons of for example demographics and attitudes of Internet users, online qualitative methods are more suitable for in-depth studies of online cultural and social contexts.

Online surveys

Standard web surveys are computerised, self-administered questionnaires (answered without the presence of an interviewer) (Lozar Manfreda, 2001; Vehovar, 2002) visually presented through some standardised web browser (e.g. Internet Explorer, Mozilla Firefox, Safari, Opera, etc.). Initially, prior to the widespread availability of the web (Fricker and Matthias,

2002), they started with email surveys in the mid-1980s (Kiesler and Sproull, 1986). Nowadays, questionnaires are typically based on HTML forms presented in standard web browsers while the responses are immediately transferred through electronic networks, usually the Internet (Vehovar, Batagelj et al., 2002). In comparison to email surveys they enable much more flexibility in questionnaire design, a reduced burden on the respondents and automatic data-file construction (Lozar Manfreda, 2001).

As mentioned earlier, web surveys are one of the most increasingly employed methods in Internet research (Van Selm and Jankowski, 2006: 435). Reasons for such popularity might be found in its profitability and the relative simplicity of constructing web questionnaires. It is not surprising that according to some predictions web surveys will one day replace other survey modes as the primary method for surveying the general population (Roster, Rogers et al., 2004: 359).

Online focus groups

An online focus group is a computer mediated 'communication event' (Terrance, Johnson et al., 1993: 53) similar to a face-to-face focus group which attempts to mimic a face-to-face interaction format online. The main characteristic of online focus groups, although many others are very similar or equal to face-to-face groups, is the online venue which calls for different skills from the researcher and participants. Both are expected to have at least some level of computer literacy and technical skills.

Another important difference between face-to-face and online focus groups is the temporal structure of the group. Whilst face-to-face focus groups are always in real-time, online focus groups can also be non-real-time or asynchronous. This temporal dimension has significant implications for how the group functions (Mann and Stewart, 2000; see also Lobe, 2007).

Online interviews

Online interviews are aimed at capturing the spontaneity of traditional interviews (Chen and Hinton, 1999) and are therefore an application of traditional interviews to the ICT environment. Much like traditional in-depth interviewing, which Neuman (1994: 246) defined as 'a short term secondary social interaction between two strangers with the explicit purpose of one person obtaining specific information from the other', online interviewing seeks to establish computer-mediated interaction in order to enter into the other person's perspectives, which are 'meaningful, knowledgeable and able to be made explicit' (Patton, 1990: 278). Both forms of interviewing have the characteristics of a 'conversation with a purpose' (Burgess, 1984).

Considering the temporal structure of online interviews, we can distinguish two basic types of them: synchronous and non-synchronous (Chen, 1997; Markham, 1998). Synchronous online interviews (i.e. via instant messaging applications) are conducted in a real-time format which allows an immediate but non-recurrent interaction much like traditional interviews. Non-synchronous online interviews (i.e. via emails), on the other hand, require an extensive amount of time to be concluded as they involve a repetitive long-term interaction. Thus, this format of online interviewing is more suitable for addressing more complex research problems as they permit long-lasting and more personal interaction. Kivits (2005) argues that precisely for these reasons the asynchronicity of online interviews is a key to the reflection process.

Online interviewing as such bypasses some of the key limitations of traditional interviewing. Whilst traditional interviews are regarded as one of the most expensive forms of social science research due to establishment costs, travelling to and from the interview venue, equipment costs and the transcription of recordings (Chen and Hinton, 1999: 2), online interviewing reduces many of these limitations. It enables one to reach a geographically dispersed population and to lower financial and time costs. Further, it completely reduces transcription errors by providing already transcribed data.

Virtual ethnography

Virtual ethnography draws on a combination of online methods, in an adaptation of traditional fieldwork methods (interviews, observations, etc), to understand the online environment. The goal of virtual ethnography is typically to study the nature of mediated interaction, the new virtual environment in which people produce new meanings and practices. Although virtual ethnography closely resembles the traditional fieldwork (learning to understand online community, observation, asking questions, gathering supplement information, interviewing), there are some critical issues that researchers should be aware of. Amongst these, the loss of continuous presence in the community, periodical nature of virtual fieldwork, the construction of ethnographer's authority is to be treated with special attention. For more information, see Hine (2000; 2005).

New methods for automated data collection

As the web is a technology and media form that can be understood at many levels, server-centric methods can be used to either accompany user-centric approach or alone. Web pages, in turn, are complex artefacts that can be written, read, used or consumed, and therefore although it is possible to do a fine grained reading of an individual webpage as cultural text, it is equally feasible to take a broad view of the way in which the Web is becoming part of global culture and commerce (Wakeford, 2004).

Turning to our scheme, the third cell refers to these new methods that include somehow offline data collection (e.g. on our computers, servers), such as logging and metrics about online visits/usage statistics.[29]

Measuring hits

Initially, a very common and also simple way to analyse and to measure the Web was through usage statistics (Wakeford, 2004).The amount of use of a Webpage was estimated through the analysis of access statistics derived from information about the user when they connected to a site. Counting access hits is still frequently reported in the media and on the 'counters' of web pages. Yet, careful interpretation of the results provided by these statistics is needed because hits do not actually measure the number of individual users, but rather the times a single user accesses a site. Wakeford (2004) argues that the mere fact that on several occasions the same user may access a Website makes the hits less reliable as a research tool. Therefore, in order to study the social significance of the Web, it is necessary to go beyond counting hits, and begin to develop sociological and cultural approaches for the study of Web-based media.

Logging

The architecture of interactive media makes collecting data about individuals media use habits considerably easier than collecting data about individuals' use of more traditional forms of media (Baruh, 2007). Wakeford (2004) argues that traces of web activity can be used for a wide variety of research and commercial purposes such as user interface usability. However, the current lack of available logging tools to assist researchers with data collection may make the selection of an appropriate research technique difficult. Nevertheless, many WWW researchers utilise logs of user behaviour on the Web to study the interactions of web users, both with respect to general behaviour and in order to develop and evaluate new tools and techniques (Wakeford, 2004). Furthermore, Atterer, Wnuk, and Schmidt (2006) point out that the information obtained by means of logging is interesting for a number of scenarios. According to them; so far the main application has been usability tests of websites, but with a tracking approach that is flexible enough it is also possible to use study web application development, beta-testing and even carry out constant/repeated evaluation of live websites. Eventually, logging can also be useful for profiling users and for implicit interaction with websites (Atterer, Wnuk, and Schmidt, 2006).

In spite of the usefulness of methods of capturing log-based data, such as the fact that server-side logging does not impact the user's natural browsing or that client-side logging can capture fine-graced traces of browsing events as well as navigation patterns, there are still some issues that need further attention. For instance, Atterer, Wnuk, and Schmidt (2006)

point out that the fact that data available for capture by means of server-side logging data is limited poses important challenges for research employing logging as a data collection tool. Furthermore, they also highlight that it is difficult to collect data using commercial web browsers and that custom implementations may not reflect the user's normal browsing environment. Finally, they argue that details surrounding the data collection methods are, problematically, often omitted from publication (unless the data collection is the focus of the research).

The fourth cell in the table above deals with new online research methods characterized by automatically data gathering, either for statistical analysis or for building an extensive user profile and mapping user patterns and preferences. These technologies are usually developed by corporations or companies to gather consumer and/or private information, in order to target them commercially. Their usefulness in scientific scenarios is questionable, mostly due to problems concerning privacy, electronic surveillance and data intrusion legislation and principles. Automatised data gathering can often be used without the respondent's knowledge and consensual participation. On the other hand they still remain, of course, highly interesting as feasibility experiments and consumer/citizen threat scenarios. Although not at all common, it is not implausible to envision similar voluntary schemes for a scientific gathering of data. Similar to the Nielsen TV ratings system, where a 'black box' is installed in the homes recording the family's viewing habits, the program runs on the host computer, recording whatever is agreed, be it time spent online, the amount of data sent and received, which web sites are visited, etc. A large degree of trust would of course have to be established, but the technology itself is simple and easily deployed. Below are some examples of Automatic Data Gathering Techniques (ADGT).

Cookies[30]

Baruh (2007) points out that among the various existing methods currently used to track individuals' content consumption online, cookies are the most widely known. He further explains that cookies are popular because standard web browsers used to surf the WWW are designed in such a way that they allow websites to place cookies on individuals' computers. Through these cookies a website is able to recognise an individual's subsequent logging on to the same website. Phillips (2001) adds that through assigning a unique identifier to a computer, cookies enable websites to track and store the actions of an individual who has used the website on a database.

Cookies are also capable of collecting information about how the individual arrived at the website and what their destination was (Regan, 2002). On a basic level they (or rather, the server receiving them) can record the number of site visits, the time of day, the host IP number and similar technical data Apart from tracking content use, cookies can also fulfil other functions such as transferring data to third parties about how an individual uses a website. Even though this function may be particularly useful for commercial or marketing purposes, the main problem with transferring information that way is that, as cookies are usually "invisible" to website visitors, individuals may be unaware that their use is being tracked (Baruh, 2004; Pennington, 2001). According to Baruh (2007) the individual's lack of knowledge and consent to be traced while online not only poses serious ethical problems but also generates concerns such as the lack of legal protection of private inquiry in interactive media, special care should be therefore, given to the use of these technique especially when using them with children and young people.

Automated data collection

When surfing on the internet, even when simply surfing from one site to another, people leave traces behind. If this information is retrieved it may provide interesting information about users as well as their behaviour on the internet. For example, market researchers use automated data collection in order to get information such as consumer's personal preferences. In this sense, the internet can be seen as useful to generate databases with information about consumer's preferences with regard to all kinds of products and services from books or music to personal health.

Usability Labs

These are especially used for usability research on different applications in different contexts and during different stages of the design process. For example, one may research the usability of computer and television based applications in a strictly controlled environment (using an observation room and a control room separated by a one-way mirror, where a computer saves all the recorded video images to help the researcher to make notes and later analyse the collected data). Some researchers make use of an eye tracking system, to record the eye movement of users while they use applications as diverse as websites, advertisements, interactive television, mobile devices or even while reading on normal paper. Eye tracking research is especially useful when exploring specific elements in a user interface or on paper, and track what parts draw most attention, which parts are overlooked and in which order the user explores the application or printed text/images. Very interesting for research in natural settings is the possibility of a portable usability lab where the usability of different applications can be researched in the natural environment of the user such as a child's bedroom.

Mapping

Due to the diversity of purposes and formats that webpages serve researchers have tried to work out ways to categorise webpages and develop typologies for the Web (Wakeford, 2004). The creation of maps based on the links between pages is one approach to categorise webpages according to what they are linked to. Several mapping techniques are currently being developed which enable visualisation of parts of the network. One example is Touchgraph, which is an open source tool for visualising relationships between websites, another example is Issue Crawler which provides a visualisation of 'issue network' maps. Like the Touchgrapgh, it shows a complex arrangement of interlinked points and related subject areas. The importance of methods such as Touchgragh and the Issue Crawler is that they allow the creation of maps of networks we would not be able to see using other methods. Wakeford (2004) argues that such facilities have the advantage of being developed in an open dialogue with their users through their websites. However she also warns us that the greatest risk of these applications is to be 'seduced' by the data itself, as reasonably unimportant patterns identified by the software may lead the researcher to draw premature conclusions. Obviously, this is not an inherent problem with online research, but rather an issue for all researchers dealing with this kind of data. On the other hand, another potential problem with such visualisation is that they show the result of tracking technological links (i.e. they offer a mapping geared to the technological parameters of association) rather than of human- centred social network such as collaboration, friendship, and so on.

Data mining

Due to the growth of the Web, there is an ever-increasing volume of data and information being published in Web pages. One way of dealing with the huge volume of information obtained is through data mining. Baruh (2007) explains that the research in Web data mining aims to develop new techniques to effectively extract and mine useful knowledge/information from these Web sources. Due to the heterogeneity and the lack of structure of Web data, automated discovery of targeted or unexpected knowledge remains a challenge, which demands the utilisation of new methods that draw from a wide range of fields such as data mining, statistics, databases, and information retrieval, among others. The proliferation of different methods of data collection creates practical problems for that collectors and users of such data have especially regarding the ways to collate data dispersed in different databases. Data mining is one way to try to solve this problem and it consists in assembling and creating knowledge out of data dispersed in different databases. The foremost purpose of any data mining or data matching effort is the extraction of meaningful patterns that can be used to predict future behaviour (Baruh, 2004; Gandy, 2002).

Web bugs

Web bugs are used to track the status of e-mails and e-mail addresses. A visited web page or a sent e-mail (either individually or by bulk) contains embedded links to external data, usually a blank or transparent image. Upon opening the mail or accessing the web page, the e-mail or web client requests the external file, which in turn results in the possibility for the external recording of a block of personal data, eg. the recipient's IP address, time and date stamp, the presence or lack of certain cookies, etc. In addition, the data request serves as a verification of the e-mail or IP address themselves. The external server can also use the opportunity to place additional, personalized cookies in the client system, thus setting the stage for a time-lined data gathering.[31]

Information gathering programs

Having the possibility to install and run information gathering software on a host computer opens up a wealth of possibilities. The most common example is Spyware, clandestine programs installed in secrecy with the purpose of collecting specific or general information either stored in the host system or of its use. A classic example is a keylogger, a program that records (and retransmits) all keystrokes on a system, thus recording everything from passwords, through e-mail content, to banking PIN codes. The data is then sent to the data gathering agency for further processing.

4.5   Ethical issues in online research with children

As any other new research methods, also online research methods require a thorough consideration amongst scholars about how to tackle the issue of these methods and ethics. As we are aware, according to many ethical research councils and Institutional Review Boards (IRBs) a researcher should balance the potential benefits of a particular research project against the potential harm that might be caused to the participants involved in the data collection process, even more so when researching children. The issues of risk to the participants being studied, appropriate means for obtaining informed consent[32], and appropriate ways to ensure anonymity, privacy and confidentiality (Jones, 2004: 181) are the main concerns that internet researchers are having to face. Similarly, Frankel and Siang (1999: 4) note:

> the ability of both researchers and their subjects to assume anonymous or pseudonymous identities online, the complexities of obtaining informed consent, the often exaggerated expectations, if not the illusion, of privacy in cyberspace, and the blurred distinction between public and private domains fuel questions about the interpretation and applicability of current policies governing the conduct of social and behavioural research involving human subjects.

Many Internet researchers are striving to develop a policy of practices, ethics and possible regulations that will help dealing with these issues. The first issue that arises is whether we need to develop a whole new set of ethical guidelines to the Internet research or is it sufficient to apply general research ethical guidelines to the new environment? Jones (2004) points out that most Internet research and online interaction 'is concerned with participation, rather than experimentation or treatments that would make [Internet researchers] consider online actors "human subjects"'. However, those studies in Internet research are no more 'subjects' than the online text they create are 'mere messages' (Jones, 2004: 183). He further advocates avoiding the diminishing of the human subjectivity and human agency of online participants, as they should not be considered as somehow less human, without their own power and values.

Therefore, Thomas (2004: 187) argues that there is no need for inventing 'new ethical rules for online research or try to reduce ethical behaviour in Internet research - or any other - to an immutable set of prescriptions and proscriptions.' What he suggests is 'an increased awareness of and commitment to 'already established ethical principles that apply across traditional research methods (2004: 187). On the other hand, Hine (2005: 5) raises a plea for re-examination of the 'institutionalised understandings of the ethics of research' as an 'online research is marked as a special category.' The specificity of online research venue is particularly emphasised by Ess and the Ethics Working Committee of the Association of

Internet Researchers (2002: 3) in their recommendations for ethical decision making in Internet research:

> But as online research takes place in a range of new venues (email, chatrooms, webpages, various forms of 'instant messaging,' MUDs and MOOs, USENET newsgroups, audio/video exchanges, etc.) – researchers, research subjects, and those charged with research oversight will often encounter ethical questions and dilemmas that are not directly addressed in extant statements and guidelines. In addition, both the great variety of human inter/actions observable online and the clear need to study these inter/actions in interdisciplinary ways have thus engaged researchers and scholars in disciplines beyond those traditionally involved in human subjects research: for example, researching the multiple uses of texts and graphics images in diverse Internet venues often benefits from approaches drawn from art history, literary studies, etc.

Ess (2004: 254) notes that the following central issues are identified by a number of ethics committees[33]: respect for persons (as the fundamental value for all the rest), privacy, confidentiality, informed consent, anonymity/pseudonymity, risk/benefits for participants, risk/benefits for social good, public versus private space, subject compensation, justice, cross-cultural issues, special/vulnerable populations, deception, nondisclosure, conflict of interest and research misconduct.

In spite of the fact that many of above issues closely resemble issues central to the general research ethics, there are initial differences, mostly connected to different characteristics of online and offline venues, that needs to be carefully considered. As explicated in the AoIR ethics report (Ess and Committee 2002: 4-6), there is a greater risk to individual privacy and confidentiality because of the greater accessibility of information about individuals, groups and their communication. Next, researchers face a greater challenge in obtaining informed consent, mostly due to a greater difficulty to ascertain participant's identity because of the use of pseudonyms, multiple online identities and etc. Finally, it is more difficult to discern ethically correct approaches due to a greater diversity of online venues (emails, chat rooms, web pages, instant messaging, discussion forums etc.) and of a great reach of the involved media (people from different cultural and legal settings).

In studying children and youth online, two important issues arise with regard to obtaining informed consent (Stern, 2004). First, when does one's youth research constitute human-subjects research, thus necessitating that parental consent be obtained by the researcher? Second, if parental consent is deemed necessary, how feasible is it, and what are potential barriers to obtaining parental consent? Determining if informed consent is necessary is a complex issue for all Internet researchers, regardless of the population they study, as discussed earlier. According to Stern (2004), this is even more complicated for those who study children, because they are less mature in their understanding of the risks and benefits of research participation.

To conclude, Thomas' (2004: 198) view can be adopted, suggesting that the fundamental ethical questions posed by new technologies are not new and thus Internet research ethics 'cannot be separated from a broader social milieu.' Hence, a global rather than parochial approach should be taken when dealing with ethical issues in Internet research.

5. Cross-national comparisons

5.1 Why compare across nations?

Cross-national comparative research - defined as 'a study that compares two or more nations with respect to some common activity' (Edelstein, 1982: 14) can be both exciting and demanding, creative and yet problematic (Chisholm, 1995; Oyen, 1990). Funding bodies, policy imperatives, professional associations and publication outlets increasingly favour comparative research of greater or lesser magnitude, with Europe taking some notable steps forward in recent years (May, 2001).

For example, initiatives such as the World Internet Project (WIP) attempt to promote research on the internet in different countries of the globe. This project invites researchers from all over the world who are interested in looking at the internet in different cultural contexts to join and conduct exclusively quantitative research on internet use and diffusion in their countries. So far there are 28 member states which have joined the WIP (including several within Europe), and through the WIP website one can have access to individual countries' websites where extensive information on publications and past as well as ongoing research is provided.

Research always begins with a review of the literature, and it seems obvious that researchers would seek to learn the lessons (in terms of both methods and findings) from one country before beginning research in another, though too often this does not happen. However, comparative research means research deliberately designed to encompass more than one country, generally applying the same framework and methods, at the same time, in several countries in order to compare findings directly.

Before undertaking comparative research, the aims must be clearly identified – comparison for comparisons' sake is often disappointing. The aims of comparative research may include any or all of the following: improving understanding of one's own country; improving understanding of other countries; testing a theory across diverse settings; examining transnational processes across different contexts; examining the local reception of imported cultural forms; building abstract universally applicable theory; challenging claims to universality; evaluating scope and value of certain phenomena; identifying marginalised cultural forms; improving international understanding; and learning from the policy initiatives of others.

In addition to the benefits of research in several countries, comparative research is also designed to avoid some common problems – first, the danger of assuming, as is often the case implicitly if not explicitly, that what has been found in one country (typically one's own) will simply apply elsewhere also; second, the opposite danger, of assuming that one's own country is unique and distinct from all others, thus seeking national rather than broader explanations for observed findings.

Last, one should be clear what is being compared. Here, we discuss the comparison of findings from different countries, but at times, researchers are interested in cross-cultural comparisons (see Thomas, Haddon et al, 2005 for the differences between cross-cultural and cross-national research), while at other times, research is subnational (e.g. only the Flemish part of Belgium, or surveying only the southern/urban region of Norway) or transnational (e.g. children from the Turkish diaspora who live in Turkey, Germany and the UK).

So, what are the ground rules for cross-national comparative research? What challenges and contradictions does it pose? Can we learn from the sizeable research literature on cross-national comparisons, and the many examples of good and poor practice, in identifying the best ways forward?

5.2   Analytic challenges in comparative research

Despite their diverse aims, comparative projects, in essence, seek to identify the patterns of similarities and differences across countries. In so doing, they must seek to avoid overstating homogeneity within countries (and so downplaying the importance of socio-demographic, regional or cultural divides within a country). They must also avoid overstating heterogeneity across countries (and so reproducing national stereotypes or exaggerating difference).[34]

A common criticism of comparative research is that it produces 'measurement out of context', prioritising methodological and/or theoretical universalism over the recognition of cultural specificity. Yet the counter view is that if research methods and findings are so thoroughly contextualised that the meaning of any term or measure can be understood only within its unique context, there can be no criteria by which to make comparisons and so societies are rendered 'fundamentally non-comparable' (Chisholm, 1995: 22).

On the other hand, while some argue that cross-national research is impossible, for others it is necessary. Beniger (1992: 35) comparison as a matter of principle, arguing that 'all social science research is comparative', indeed 'all analysis is comparative', there is no other kind Blumler, MacLeod and Rosengren, 1992). Implicitly or explicitly, research uses conceptual categories that assert distinctions (whether in terms of nation or social group or institution or medium or time). And research necessarily compares across categories, identifying what is unique or contrasting, atypical or widespread.

5.3   Practical challenges in comparative research

Folk wisdom cautions against comparing apples and oranges, and for good reason. Cross-national projects are among the most demanding to conduct, for reasons concerned with both the principles of comparison and the practicalities of implementing comparative research designs (see Livingstone, 2003; Haddon, 2004). This is particularly the case when comparison relies on multinational collaboration, exacerbated even further insofar as these cross-national collaborations are often multidisciplinary and multi-method.

Undoubtedly, one should not underestimate how much can be learned from colleagues from different cultures or what can be achieved given the combined creative intelligence of a diverse but focused group sharing their insights and energies. However, on a very concrete level, cross-national variations in professional academic cultures can create difficulties. Researchers find themselves comparing not only their findings but also their theories and concepts, methodological preferences, research ethics, writing styles and publication strategies (Haddon, 1998).

Moreover, once cross-national data is collected, it can be very difficult to interpret. In published accounts of comparative research, it is noticeable that the choice of research topic tends to be better justified than the choice of the comparative method. Further, although cross national projects readily generate national findings, along with rather broad and abstract conclusions about the importance of recognising diversity and the difficulty of making comparisons, the interpretative effort devoted directly to cross-national comparative analysis is typically underwhelming.

For example, whether looking at a set of attitudes described in qualitative research or a set of statistics, the questions are: are they 'interesting', are they significant (not in a statistical sense), are they surprising? How should one characterise them (in the same spirit as arguing that 'is cup half empty' vs. 'the cup is half full)? And in writing a national report, for example, of all the things one could choose to mention, what should one select? To some degree, what national teams write can be standardised, but problems often remain, especially 'gaps': if a researcher in one country includes some aspect of the phenomenon which is not mentioned in another national study, does this mean that it does not occur in the second country?[35]

For these and other reasons, it must be observed that, too often projects fail to undertake the comparative element, merely placing national reports side by side and leaving the reader to make their own comparisons regarding similarities, differences and consequences.[36]

5.4   Approaches to cross-national research

A helpful analysis developed by Kohn (1989) identifies four distinct approaches to cross-national comparison within social science according to their primary purpose.

1. *Nation as object of study*. Here the aim is idiographic, to understand particular countries for their own sake, comparison providing a useful means of determining what is distinctive about a country. A fair number of comparative projects fall into this category, comparison being used as a strategy for 'seeing better', rather than in order to draw more general comparative conclusions. In this sense, comparative research has rather modest aims, and so may be adopted by those who endorse the 'comparison is impossible' position.

   The Mediappro project (www.mediappro.org) illustrates this approach, for it sought to identify the specific cultural contexts within which children in different countries use the internet and, in consequence, use it differently. While findings from one country were used to stimulate questions for another, with findings from each country reported side by side, few direct comparisons are drawn, possibly because these seemed to violate the cultural integrity of each nation.

2. *Nation as context of study*. This model tests the hypothesised generality of findings across nations in order to support claims regarding an abstract or universal phenomenon. Like model one, these projects may be modest in their attempt to capture the complexity of each country compared, although they are rather more grand in their ambition to test the hypothesised universality of a particular phenomenon, pooling data from many countries to show how a theory applies in each one of those countries.

   Arguably, the SAFT project (Staksrud, 2005) illustrates this approach, for it examines how differences in age, gender, parent-child relations etc are fairly constant across (Northern) European countries, as regards children's use of the internet and their contact with its risks. In other words, SAFT treated each country as a distinct context precisely in order to test whether the same finding (such as, parents underestimate risks online compared with children) in those different contexts; only if the similarity holds is the finding considered robust.

3. *Nation as unit of analysis*. In this model, given the prior identification of a number of measurable dimensions along which nations vary (e.g. gross national product, unemployment rate, etc), systematic relations are sought among these dimensions, each nation thereby serving as one unit or data source. This model can be seen as a multidimensional version of model two insofar as an abstract, cross-national theory is sought and tested. However, this theory also seeks to understand the diversity of different national contexts, achieving this by re-presenting the specificity of each country using a common conceptual language (i.e. in terms of the interrelations among the multiple dimensions on which each country is compared).

   The Children and Their Changing Media Environment project (Livingstone & Bovill, 2001) exemplifies this approach, for it sought to understand how systematic differences in education, wealth, parenting, etc. were associated with differences across counties in children's media use, including adoption of new media. Thus is examined the correlations between national wealth (e.g. GDP), or degree of ICT diffusion, and the dependent variables of children's media use; this model expects to find neither similarities nor differences, simply, but rather to find a model that applies across all nations that explains differences observed among them.

4. *Nation as component of a larger international or transnational system*. Exemplified by theories of cultural dependency, imperialism and globalisation, this approach compares nations insofar as they are (assumed to be) systematically interrelated due to some underlying process (e.g. capitalism). Like model three, therefore, this model permits a complex account of each national context or system, but here an external explanation is

sought in terms of a larger hypothesised transnational or global process rather than an internal one of relations among the key dimensions defining each national context. An extreme version of this model argues for the transnational or global level while ceasing to assert the validity of the national.

Though lacking an explicit theoretical framework, the recent Eurobarometer surveys of internet use at home illustrate this approach, for the policy context assumes a global process of transition into the Information Society, with countries further advanced (earlier adoption, greater diffusion, more broadband, etc) showing signs of both benefits and risks for children.[37] The implication is that all countries in the research are experiencing the same phenomenon, albeit at different points in the process (so that what is already evident in one country – regarding, for example, online risks for children - may be anticipated in the near future for the next).

5.5   Key decisions in cross-national research

In addition to the main decision, namely the primary purpose of the research, several other decisions are also important.

Selecting countries for comparison

Little formal attention is paid to the question of country selection, these decisions often being somewhat ad hoc, convenient or serendipitous, not necessarily best meeting the research aims but depending instead on practicalities of contacts and funding. Yet, depending on the countries compared, findings will centre more on similarities or on differences.

Hence, a research project which spans continents, comparing vastly different countries, may have difficulty identifying the fine-grain differences which research on similar countries will reveal. Conversely, comparing similar countries, perhaps from the same geographic region, may miss the bigger picture of transnational differences. The lens one chooses to apply depends on the research question asked.

If one is treating each nation as the *object of study*, comparing fairly similar countries may prove most useful, particularly to inform regionally-based (e.g. EC) policy (Teune, 1990; Hantrais, 1999). If one is studying the generality of a finding across nations (*nation as context of study),* selecting countries so as to maximise diversity along the dimension in question allows one to explore the scope or universality of a phenomenon. For model three, one would select countries to capture diversity within a common framework: since the use of multiple dimensions invites a conception of the relations among them, this tends to support theory-building through the development of a common framework based on a pan-national conception of the dimensions themselves. Lastly, projects which conceptualise the nations to be compared as *components of a transnational system* will select countries by seeking to maximise range and diversity globally.

Standardisation vs. contextualisation

Many comparative researchers address the challenge of comparison by standardising their methodology and research tools, devoting considerable attention to strict equivalence in measurement procedures through such techniques as the back-translation of survey instruments, as well as ensuring transparency by including questionnaires and coding schedules in the final publications. The difficulties of comparative research, on this view, stem from the exacting task of ensuring equivalence of terms, comparability of measures and in applying standardised forms of analysis. It must be acknowledged, however, that many (perhaps all) key concepts change their meaning on translation (Hantrais, 1999; Livingstone, 2005): notable examples in the field of children and the internet include (in English), 'bullying', 'literacy', 'audience', 'pornography', etc.

In practice, quantitative research usually makes an effort to keep the exact wording in different national surveys (although variation can still be introduced in the process of translation and in terms of whether a concept means the same thing in different countries/cultures). In qualitative interviews, the difficulties are compounded by the fact that

researchers can agree on a general interview schedule, but then in 'conversations' with the participants the exact wording often varies, depending on the particular interview context, on the researcher's disciplinary training and on the cultural or national research context (Mante-Meijer and Haddon, 2005; Haddon, 1998). In those cases where the research is conducted by market research companies, rather than by a multi-national team who can at least meet and discuss the research in advance, cross-national differences may emerge as an artefact of methodological and contextual differences.[38]

Not all are persuaded by these practical resolutions to the problem of comparison, arguing that the more one sets out to control the process of data collection, the more validity is sacrificed. Hammersley and Atkinson (1983: 7) observe that, 'using standardised methods in no way ensures the commensurability of the data produced. In fact, quite the reverse occurs. Interpretations of the same set of experimental instructions or interview questions will undoubtedly vary among people and across occasions'. The consequence is, as Peschar (1984: 4), is it, that 'in order to achieve such an instrument… what is considered to be "noise", and thus removed, is in fact the most interesting part of the research, namely the *national particularities'*.

While policy development, especially at a European level, provides a significant impetus towards comparison based on standardisation, with substantial funding being used to generate multi-national quantitative data sets, the academic trend is increasingly 'away from universalistic culture-free approaches to culture-boundedness, which has placed the theory and 9 practice of contextualization at the nexus of cross-national comparative studies' (Hantrais, 1999: 93).

This is, arguably, a particular problem for qualitative research. As Mangen (1999: 110) observes, 'the strengths of qualitative approaches lie in attempts to reconcile complexity, detail and context' – all dimensions that are particularly difficult to convey when translating across languages and research cultures, and when undertaking the exercises in standardisation or data reduction that making comparisons seems to demand. Yet such concerns apply also to quantitative research, where the ease of producing neat tables of statistics may beguile the researcher into neglecting crucial differences in the meaning of terms or the contexts within why they apply.

Data and theory

As Hoftstede (1998: 19) notes, favouring contextualisation without standardization means that one 'gets stuck in case studies that cannot be generalised', while favouring standardization without contextualisation results in 'abstractions that cannot be related to real life'. This debate can only be resolved by considering the relation between data and theory. Swanson (1992) argues that too many projects take a 'pre-theoretical' approach premised on active avoidance of the epistemological issues at the heart of comparative research; yet even if the data can be said to be directly comparable, cultural divergence must of necessity reappear at the point of interpretation and theory.

Hence, Swanson argues for a 'metatheoretical' approach that seeks to theorise (or interpret against an explicit framework) the categories and concepts central to interpreting comparative data. This is consistent with what Blumler, McLeod, and Rosengren (1992: 7) term 'system-sensitivity'. They argue that comparison 'is not just a matter of discretely and descriptively comparing isolated bits and pieces of empirical phenomena situated in two or more locales. Rather, it reflects a concern to understand how the systemic context may have shaped such phenomena'.[39]

For example, Bendit (2006) offers an analysis of the structural conditions under which European youth grow up, the aim being a theoretical analysis that recognises differences among countries but that applies at a pan-European level. In another example, Hallin and Mancini (2004) propose a framework for comparative analysis of the relationship between the media and the political system, through surveying media institutions in eighteen West European and North American democracies. They then identify the principal dimensions of variation in media systems and the political variables which have shaped their evolution in

order to propose three major models of media systems development, the Polarized Pluralist, Democratic Corporatist and Liberal mode, thus explaining why the media play a different role in politics in each of these systems.

Bohman (1991) concludes that research must combine insider and outsider perspectives, arguing that 'contextualised interpretation' requires the researcher to draw on insider knowledge, while 'rational interpretation' requires the researcher to draw on outsider knowledge. Alasuutari (1995) outlines a similar resolution, in which one must simultaneously make the familiar strange (through becoming an outsider) and make the strange familiar (through becoming an insider).

Integrating these forms of knowledge is challenging for any research design. In practice, comparative researchers combine the insider and outsider perspectives through several strategies: several researchers, each local to a particular research context, may come together to compare interpretations; or, 'outside' researchers visit and immerse themselves in multiple locales; or, the research project appoints advisors from other countries who comment 'from outside' on the research produced 'from inside'. Whichever strategy is adopted, the trick is to keep the insider and outside perspectives in dialogue.

These decisions differ for each model of comparative research, as summarised in the table below (adapted from Livingstone, 2003)

Models of Comparative Cross-National Research

Nation as …

	Object of study	Context of study	Unit of analysis	Part of larger system
Primary purpose	Idiographic – understand each country in own terms	Test abstract hypothesis or dimension across countries	Seek relations among dimensions on which nations vary	Interpret each country as part of transnational system
Country selection	Compare any, all or similar countries	Maximise diversity on one dimension	Diversity within a common framework	Maximise diversity on all dimensions
Standardise methods	Optional (since concepts to be operationalised are strongly contextualised within each nation)	Favoured (since concepts to be operationalised are drawn from theory or treated as universal)	Favoured (since concepts to be operationalised are drawn from theory or treated as universal)	Optional (typically a combination of methods is used, with some local and some global concepts)
Contextual-isation	Strong (but not cross-nationally comparable)	Weak (except in post-hoc explanations)	Strong insofar as captured by comparative dimensions	Strong (balancing local and global)
Relation between data and theory	Pre-theoretical: descriptive, mapping	Metatheoretical: hypothesis-testing	Metatheoretical: theory-building, modelling	Metatheoretical: theory-elaboration

5.6　Methods of comparative data analysis

Many comparative projects begin with an agreed template according to which national findings, whether based on qualitative data, quantitative data or some combination thereof, are summarised in an overview that permits ready comparison across countries.

These may be further organised using some kind of matrix that tabulates countries against dimensions of analysis (e.g. measures of internet access, internet use, common activities, incidence of risk, etc). The cells may then be populated with directly comparable statistics (e.g. percentages or other measures), with equivalent findings (e.g. regarding age, gender or other differences), with quotations or excerpts from observations (if qualitative), or with summative comments or notes of interesting differences or similarities.

Many studies go no further than this. However, as a means of data reduction and in order to draw out the key findings, it is desirable to consider groupings of countries (whether top-down, according to a priori similarities and differences by region, language or other known factor, or bottom-up, according to patterns observable in the data). These may be related to key variables or dimensions of comparison and ordered hierarchically in a decision tree.

For example, in chapter 1 of Livingstone and Bovill (2001: 23), children's media use was mapped according to their television environment. This first divided countries by size of language community (larger, smaller), then by cable infrastructure (higher, lower), then by GDP and size of television market (lower, higher); thus observed differences in children's media use could be systematically related to relevant country groupings. In another example, drawing on the Eurobarometer 46.1 survey, Bauer and Gaskell (1998) illustrate the richness of national contexts and how different national profiles in Europe influence European public perceptions of biotechnology. More specifically, they show how the complexity of the relationships between policy debates, media coverage and public perceptions accounts for the complexity of public responses to biotechnology in Europe, by positioning it in relation to specific cultural, economic and political contexts across Europe.

If the data is quantitative, and the measures used are standardised across countries, then a range of standard statistical techniques are available, begin with multiple tabulations and moving towards hypothesis testing and model-building. This process may be greatly aided by resources such as the United Nations Information and Communications Technologies Task Force (http://www.unicttaskforce.org/globaldatabase/), which provides on its website useful comparative data and reports on divergence of online technologies use in different parts of the globe and mainly with respect to the gap between West and third world countries.

For the more difficult projects where the data combine qualitative and quantitative measures, or where the measures vary across countries, researchers have developed the systematic and comprehensive approach known as QCA (Qualitative Comparative Analysis). In a nutshell, QCA is an analytic strategy to examine the comparability of multiple cases, seeking 'to gather in-depth insight in the different cases and capture the complexity of the cases' whilst still pursuing some level of generalisation (Rihoux, 2006). It is often referred to as a strategy taking the researcher beyond the qualitative and quantitative strategies as it aims at bringing together case-oriented[40] and variable-oriented[41] approaches (see Ragin, 1989; Rihoux and Grimm, 2006). Typically, this approach takes into consideration a small or intermediate number of cases along with a small number of variables, which are drawn from a pool of various qualitative and quantitative collected data.

Social scientists are often oriented towards producing generalisations to discover general patterns through a cross-case analysis. However, such a cross-case approach can lead to a serious limitation, with spurious correlations being one of them. In order to overcome this limitation, we can complement cross-case analysis with a within-case analysis (Ragin, 2006). Moreover, Rihoux (2006) notes that the researcher often runs into research objects that are relevant and interesting but their populations may be limited to a fairly small number of cases. These types of populations are referred to as 'small-N' or 'intermediate-N' populations[42]

(Rihoux, 2006: 681). However, the researcher can also deliberately focus on a limited number of normally large-sized populations.

The approach is particularly appropriate to address issues dealing with cross-national, cross-regional, within-national, or within-regional comparisons (Rihoux and Grimm, 2006: 3). With such methods, the in-depth knowledge of the cases can still be preserved without having to give up the generalisation potential. Therefore, each individual case is regarded as a complex entity and QCA develops such a conception of causality that can coexist with this complexity. This results in multiple-conjunctural causation (Ragin, 1989). In order to understand this concept, some basic terms are calling for definition. First, multiple-conjunctural causation in QCA typically implies a combination of conditions (independent variables) which are dichotomised variables produced out of various qualitative and/or quantitative data. A certain combination of conditions thus determines a phenomenon in the form of a certain outcome (dependent variable). Like conditions, an outcome is also a dichotomised variable. Further, an outcome is very likely to be produced by more than one combination of conditions.

Thus, QCA can be used to 'determine the different combinations of conditions associated with specific outcomes or processes' (Ragin, 1989: 14). It basically uses Mill's two inductive methods, one being the method of agreement and the other the indirect method of difference, which use 'all available and pertinent data concerning the preconditions of a specific outcome and, by examining the similarities and differences among relevant instances, elucidate its causes' (Ragin, 1989: 15). This opens up room for different causal paths that may lead to the same outcome and each of which may be relevant in its own distinct way (Rihoux, 2006). Each of these different paths signifies a different totality and thus the combination of conditions has to be understood as a whole rather than just a different combination of specific values on conditions (see Ragin, 1989).[43]

5.7 Longitudinal analysis

Comparison is a key issue when interpreting research findings. Cross cultural comparison has been discussed here in some detail but it is worth to mention also comparison in time with longitudinal and long-term research designs. Many of the challenges present in cross-cultural research is also present in longitudinal analysis while the goal is to obtain comparison between two or more points in time.

True longitudinal studies rely on panel data and panel methods where the same individuals are measured on more than one occasion on the same variables. An alternative is an omnibus panel where the information collected varies from one point in time to another. Compared to cross-sectional studies longitudinal studies are quite rare in the field of media studies. This is mostly due to the fact that these studies are often more complex and more expensive than cross-sectional studies.

An example of a true longitudinal research project is the Swedish Media Panel project (see http://www.ssd.gu.se/). It is a long-term research program focused on basic aspects of the mass media use by Swedish children, adolescents and young adults, as well as on the causes, consequences and effects of that media use. The program was founded by Rosengren and Windahl in 1975, after a series of preliminary studies. A much more common method is to seek comparison in time through long-term research projects where similar groups are studied on different points in time. An example of a long term research project on children and media use which relies on this kind of comparison is Children and Television in Iceland (see www.btvi.is) where information on media use for children aged 10-15 years has been regularly since 1968 thus enabling comparison over time.

Probably the single most important advantage of longitudinal data is the possibility to analyse change over time. A popular idea that research projects using repeated surveys as a method for measuring social change should aim at keeping changes in the research design between surveys at an absolute minimum. This is perhaps one of the reasons why longitudinal designs are so little used for involving children and media as this is often very difficult to achieve in studies in the ever changing media environment. This is especially true when the time span of

a research project is stretched over several decades. Then the ideal of standardization will eventually come into conflict with the need to collect meaningful information from the respondents or participants in the study.

5.8   Researching context in cross-national analysis

This methodological review has focused on processes and issues. But it is useful to have some examples of the types of factors one might consider in making cross-national comparisons in order appreciate the form of the analysis and the type of research process that is taking place. To this end, this section draws upon some examples from one of the other work packages involved in the *EU Kids Online* project[44].

If we take a particular example of pattern being considered, it is clear from a variety of statistics that parents have different perceptions of internet risks across the countries being examined. Hence the work package participants are considering a variety of potential contributory factors and different ways of trying to measure them.

One starting point is the use of other data from within the same survey to try to make more sense of the particular patterns that are of interest. In this particular case, these added only limited insights and therefore we have had to turn to other statistical sources. Examples would be measures of internet diffusion in the different countries and information about more general values and attitudes from the European Social Values survey.

In this study we also wanted to examine parents' views on children and parenthood. For example, in different countries, how far do parents think that monitoring their children's socialising on the Internet is their responsibility versus the responsibility of other agencies? Here we would, as in the case of social values, look to the research outside the field of ICTs, in this case studies of comparative parenting.

We also wanted like to know about various histories to provide yet more contextual information about the countries concerned. For example, this might include the history of the internet as a market: its roll out, what services, content, communications options, etc. were on offer at different points in time etc. After all, one of the reasons that parents might have different perceptions of risk is that the internet may have been experienced differently in different countries. Certainly we wanted to know about the history and nature of media coverage of children and the internet in different countries – which in the case of some countries was aided by the existence of relevant databases of, especially, press coverage. But since media coverage does not occur in a vacuum we also asked about the activities of potential stakeholders and lobbying groups trying to make risks more visible, national variations in legislation in this field and the degree of proactivism of the law enforcers and whether there were specific events that may have had a bearing upon public perceptions. And so on.

What is clear from this line of enquiry is that when we take serious the challenge of understanding cross-national variation one can investigate more and more layers of context. Some can be in the form of 'thick' descriptions that try to do justice to the complexity involved, as in some histories noted above. Hence rather, or in addition to, searches for statistical correlations we can have an analysis that involves the mobilisation of diverse forms of evidence to develop arguments. Moreover, that evidence itself is sometimes by no means straightforward. If no pre-existing study is available that we can make use of there is the question of where to look for evidence and, indeed, what would count as evidence (e.g. of the degree of activity of stakeholders, as noted above) In many respects the model, or metaphor, when doing this type of cross-cultural analysis is researcher as detective.

One last point is that in this type of analysis background knowledge is vital (both of the country and of national research). Hence in this project the participating national teams provide at least some of the contextual information outlined above for each country. Up to a point one can specify in advance that these teams will try to provide similar types of information. But from experience in past international projects (Haddon, 1998; Mante-Meir et al., 2001) national teams might not consider making certain observations, for example, adding

some (what turns out to be) pertinent detail about the nature of the education system, until they realise that the situation is different in other countries. Hence, another potential difference of this type of cross-national analysis from single country studies is that not is it only necessary to have the participation of researchers from the relevant countries, but it is important to have a timetable that allows for the discovery of relevant factors through interaction. This might mean scheduling in time for discussion or else iterations where teams can see what other teams have written about and rethink the contextual information that they might like to add in that light.

6. Summary and conclusions

6.1 Methodological challenges and debates

The EU Kids Online project has, in its online data repository (Work Package 1, see www.eukidsonline.net), identified a fair body of research on children's internet use across Europe. Nevertheless, key gaps in the evidence base persist, and there is still a long way to go in terms of empirical research and theory. The analytic and practical challenges discussed in the present review have begun to point out possible future directions in this still new and continuously evolving field.

There many debates regarding methodology, complicating the task facing researchers in of children's online activities. Hence, this review began by observing that differences of opinion regarding methodology can be strongly principled and hotly contested. Researchers expert in or committed to one method can be highly critical of the approach taken by others. However, we also discern a growing consensus regarding the value of multi-method research over purely quantitative or purely qualitative approaches.

The demands of integrating methods are, however, easily underestimated, with the bland claim of 'triangulation' often accompanying the mere presentation of qualitative and quantitative findings side by side. For this reason, the present review has discussed recent developments in relation to triangulation and data analysis, contrasting the approaches of triangulation and complementarity, and outlining the main research design decisions to be taken. The integrated analysis of multiple data types is demanding, particularly when research is simultaneously cross-national, and we can only point here to the sources where expert deliberation regarding optimal approaches is taking place.

It has been an assumption of the present work that the criteria for evaluating quantitative research are fairly well known, but those for qualitative work are less well known. However, both methods can be evaluated and held accountable, as we have sought to stress. Quantitative standards include, as central, considerations of sampling representativeness, measurement reliability and validity. Qualitative standards are less familiar, but may include credibility (an analogue to the quantitative standard of internal validity), dependability (an analogue for reliability), confirmability (analogous to objectivity) and transferability (to replace external validity).

All this matters because researchers, policy makers, industry, child protection experts and others are increasingly reliant on empirical research to guide their understanding of online use, risk and issues as they affect children and families in Europe and elsewhere. This review aimed to provide an accessible account of key issues, dilemmas and insights from the methodological literature, addressed to the research community defined broadly, in order to inform both the critical interpretation of already available research and the appropriate commissioning and design of new research. In addition to addressing general considerations regarding the framing, design and conduct of quantitative, qualitative and mixed method research, this review has examined methodological knowledge in each of three specialist domains, all central to the field of children's internet use in Europe – research with children, researching the online environment, and the conduct of cross-national comparisons.

6.2 Conceptualising children's relation to technology

The changing media environment has some specific implications for children (Murdock, Hartman, and Gray, 1992; Sefton-Green, 1998, Buckingham, 2000; Livingstone and Bovill, 2001), not least because many of these new cultural forms are primarily identified with younger generations. Children are very much pioneers in the new media environment (Drotner, 2000), in the vanguard of 'trans-media intertextuality' (Kinder, 1991) or the

development of new media literacies (Ito, Okabe, and Matsuda, 2005; Kellner, 2002). Yet caution (and evidence) is needed since research should not assume that all children are participating equally in excitingly new digital opportunities; for they do not all possess the resources, skills or motivation to do so.

The role of children and young people in the changing media and information environment is, further, subject to debate. On the one hand, media-centred perspectives, characterised by the belief that children and adolescents are passive recipients of media messages, view children as vulnerable to commercial exploitation or to the seductions of media imperialism and as highly at risk from the negative influences of the media (e.g., Masuchika Boldt, 2007; Buckingham, 2000). Public debates, and media coverage, clearly influenced by this deterministic view of children as 'victims" of the media, have become more and more preoccupied with 'defending' children from harm.[45]

On the other hand, discourses circulating within the media industries seem to be moving in a rather different direction. Here, children are no longer regarded as innocent and vulnerable to media influence. On the contrary, they are increasingly seen and portrayed as sophisticated, demanding, 'media-wise' consumers (Buckingham, 2000). This argument is mainly based on the idea that the commercialization of children's media culture is not a matter of exploitation, but on the contrary a means of liberation, where children are being empowered to make their own decisions about what they want to experience and know about, beyond the controlling adult power. On this view, stemming not only from commercial perspectives but also from child-centred sociological perspectives, children are seen as sophisticated, discriminating, critical consumers.

While there is a common sense recognition that researching children raises some distinctive issues, the growing methodological movement that argues for a child-centred approach, allowing children to speak for themselves in the research process, has not yet achieved a consensus. This is partly because of concerns regarding the reliability of children's accounts and partly because of the practicalities of researching children – asking their parents, or including teenagers in a 'general' survey as if they are merely small adults can seem easier and cheaper than addressing the specificities of work with children and young people.

For this reason, we have reviewed the literature regarding the power inequality in adult researching children, the specific ethical issues regarding research with children, and the range of strategies evolving to ensure in practice that research with children is insightful and informative. This leads us to advocate sensitivity to the issues of working 'with' rather than 'on' children, whether children are integrated into a broader study of adults or the focus of research in their own right. Such an approach has several implications for researching online risk to children included, as noted earlier, the importance of recognising children's own agenda of risks that concern them, for these differ in crucial ways from those of concern to adults.

6.4   Researching the online environment

The development of a stable analysis of the relationship between young people and technology and the ways technology has impacted on young people has proved to be a difficult exercise (Lee, 2005). Lee goes on to ague that studying the impact of the Internet on young people becomes more difficult because of dimensions such changing situations, the impact of policies and technological availability. In general, drawing together studies on the nature of the Internet, of children's Internet use and the consequences of their use remains a challenge. Furthermore, even though researchers have begun to move from questions of access to questions of the nature, quality, social conditions and personal meanings of its use, researching children's use of the Internet is no easy matter (Livingstone, 2002).

Moreover, the constantly changing nature of the internet and other online technologies makes research in this area especially challenging. Graham (1999) warns that anyone attempting to write about the Internet in a reflective way must assume that both the technology and its use are sure to alter considerably even while such reflection is taking place. Livingstone (2003)

also claims that the answers produced by research are provisional because the Internet, both as a technology and in its social contexts of use, is changing rapidly.

Therefore, instead of adopting the technologically determinist assumption that the Internet is external to and so impacts on society, research has begun to recognise how longer term processes of social change themselves shape the introduction of technology. At the same time, simple cause-effect questions are beginning to be eschewed in favour of more complex, multidimensional accounts of the contexts and consequences of Internet-related practices (Livingstone, 2002). Nevertheless, still only a few studies in the field have dealt with deeper or more complex issues related to the ways the Internet has impacted on children and young people's lives.

Methodological developments are less clear regarding the specificities of the online environment. There is, undoubtedly, a growing body of expertise regarding research on the internet and other online technologies, this raising challenges regarding the multiplicity, complexity, mobility, and diversity of the changing array of information and communication technologies that people engage with, there are not, as yet, clearly agreed principles or practices of research.

For some, these technologies require the mere extension and, possibly, minor adaptation of well-established methods. For others, these technologies demand the development of new methods appropriate to the specifics of the new media environment. Such differences of opinion are not widely debated and we hope to have demonstrated here both the strengths of drawing on established methods and the potential of new methods for this field.

6.5   Researching the European environment

This review has argued that comparative research is challenging because one must balance and interpret similarities and differences while avoiding banalities and stereotypes. It is demanding because findings must be contextualised if they can be meaningful, requiring detailed information beyond the immediate focus of research.

Comparative research is difficult also because of its pragmatics and politics – which countries to select, who is left out, who speaks the dominant language, who funded the research, and so forth. And, even setting aside the interesting and growing problem of the validity of the nation as a unit (for cross-national comparisons surely presume its validity at least in pragmatic terms), what is really at stake is a series of epistemological issues which at their most stark pose researchers with the contradiction between the apparent impossibility and the urgent necessity of comparison.

Different scholars will make different choices, where these should depend on their theoretical orientation and, crucially, their research question. It is vital, however, that cross-national research should make informed and explicit choices regarding its approach to comparison. Our purpose in mapping the various models of comparative research is not to argue for one over others, but to invite researchers to explicate and justify which one they adopt.

We note, last, that a growing body of opinion in the research community favours transnational over cross-national approaches. This work seeks to inquire into the flows and passages of ideas, media, styles or practices across national borders, rather than localising particular forms or practices within national borders. Methodologies for such work are being developed (see Ito, Okabe, and Matsuda, 2005; Robins and Morley, 1989). Such a perspective must surely serve as a critical framework for continuing cross-national (and, indeed, national) research.

6.6   Looking ahead to producing a Best Practice Guide

To lay the groundwork for future research in this field, of which there is likely to be a fast-growing amount, our purpose is to draw on the present analysis of principles, arguments, experiences regarding research methodology (the present report) in order to construct a 'best

practice' research guide (the next report, due Autumn 2008). There is already much informal discussion and critique of the sampling, tools and analytic strategies adopted by different projects internationally, as well as various practices of informal sharing of survey questionnaires, discussions at international conferences and via email networks of colleagues regarding research problems and potential solutions, and so forth. However, such discussions tend to occur within networks of like-minded colleagues, and they do not cross language barriers well. Thus many are excluded from such discussions, however, mainly for reasons of language, geography or discipline.

The Best Practice Guide will thus attempt to systematise the lessons learned through research practice, as well as drawing on insights from the diverse articles and reports published on matters of methodology in this field. Given the growing number of countries and institutions looking to conduct empirical research, often for the first time, on questions of children and internet safety, there is considerable merit in collecting together, as a public resource, the best practice insights (as well as the mistakes or difficulties) faced by current researchers in the field. It will offer a guide to the conduct of future research on this topic, including the provision of sample themes and questions, matching surveys of children and parent, considerations of research ethics, designing age-sensitive questionnaires and interview protocols, the measurement of difficult topics (e.g. reliable assessment of time use, the complications of internet access, asking about private or risky issues), sampling considerations, the availability of standardised scales, and so forth.

Since research has been and continues to be conducted rather more in some countries than in others, and since different research cultures sustain different experiences or specialisation, this seems a valuable moment in time at which to generate a 'best-practice' research guide for application, and modification where appropriate, in future European research. Furthermore, since it is also likely that research will increasingly be comparative or even pan-European, a focused discussion and sharing of methodological knowledge by a multi-national European team seems apposite.

7.   Bibliography

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8.   Annex: EU Kids Online

**European Research on Children's Safe Use of the
Internet and New Media, see www.eukidsonline.net**

EU Kids Online is a thematic network examining European research on cultural, contextual and risk issues in children's safe use of the internet and new media between 2006 and 2009. This network is not funded to conduct new empirical research but rather to identify, compare and draw conclusions from existing and ongoing research across Europe.

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

EU Kids Online encompasses research teams in 18 member states, selected to span the diversity of country and of academic discipline or research specialism: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, France, Germany, Greece, Iceland, Norway, Poland, Portugal, Slovenia, Spain, Sweden, The Netherlands and The United Kingdom.

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

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

Main outputs are planned as follows:

- *Data Repository*: a public, searchable resource for empirical research (now online)
- Report on *Data Availability*: a mapping of what is known and not known (Sept 2007)
- Preliminary Report *Comparing Three Countries* (Sept 2007)
- *Methodological Issues Review* (Sept 2007)
- Report on *Cross-National Comparisons* over 18 Countries (Sept 2008)
- *Best Practice Research Guide* (for future research in this field; Sept 2008)
- Report: *Cross-Cultural Contexts of Research* (March 2009)
- *Final Conference* (June 2009)
- Report: *Summary and Recommendations* (June 2009)
- *Final Report* and *Book* (Sept 2009)

For further information, see www.eukidsonline.net or contact p.tsatsou@lse.ac.uk

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9.   Endnotes

[1] Source: Eurobarometer Survey (May 2006).

[2] EU Kids Online thanks all those who have contributed to discussing, critiquing or otherwise helping with the preparation of this report, including members of our International Advisory Board.

[3] "Scientific method", in *Dictionary of the Social Sciences* (Calhoun, 2002).

[4] "A philosophical and social scientific doctrine that upholds the primacy of sense experience and empirical evidence as the basis for knowledge and research." From, "positivism" *Dictionary of the Social Sciences* (Calhoun, 2002).

[5] "Social theory that seeks to avoid the ideological assumptions of conventional worldviews and more traditional theories. In particular, it seeks to grasp the underlying conditions of possibility for social life, and thus for change in existing conditions." From, "critical theory" *Dictionary of the Social Sciences* (Calhoun, 2002).

[6] "Epistemology", *Dictionary of the Social Sciences* (Calhoun, 2002).

[7] "Reflexivity", *Dictionary of the Social Sciences* (Calhoun, 2002).

[8] For example, in Spain the only qualitative study carried out on children and their use of the Internet was academic. NGOs and public institutions have also conducted research on this topic, but all of these studies have been quantitative. When one looks at the research in this field in Portugal, one can see that the Portuguese case does not differ from the Spanish case, except for the fact that there have been several more qualitative studies, but all of which are academic.

[9] Epistemology is typically concerned with the relationship between the researcher and what is being researched (how we know things, what is the nature of the knowledge). Ontology deals with the nature of the reality to which the knowledge refers.

[10] There are many non-positivist paradigms related to qualitative tradition, such as naturalism, interpretivism, constructivism, hermeneutics, feminism, critical theory, participatory paradigm etc. For a detailed list, see Tesch (1990).

[11] The main difference between empirical and critical realism is that whereas positivists take the view that the scientist's conceptualisation of reality is actually a direct reflection of that reality, critical realists claim that the scientist's conceptualisation is simply a way of knowing reality Bryman, (2001).

[12] "Survey research" *Dictionary of the Social Sciences* (Calhoun, 2002).

[13] To permit conclusions beyond the particular respondents in the study, sampling considerations – which may legitimate inferences from the sample to the population (defined broadly or specifically) - are paramount (Walliman, 2006). These vary across and within qualitative and quantitative research, including the following strategies: (1) Convenience sampling (volunteers), linked to (2) Snowball sampling (the researcher contacts a small number of members of a target population and asks them to introduce him/her to other appropriate members of that population, thus working via key informants); (3) Theoretical sampling (the researcher contacts a small number of members from a population he thinks knows most about the subject of the study), linked to (4) Purposive sampling (the researcher selects what s/he thinks is a 'typical' sample based on specialist knowledge or selection criteria about the subject of the study, thus deciding decide who is 'representative'; (5) Quota sampling (with quotas based on population characteristics such as age, gender, income); and (6) Probability (random) sampling (including simple random sampling, where sampling frame is a list of everyone in the population and so every unit of the population has the same chance to be randomly selected; stratification sampling, where the sampling reflects the known stratification within the population, and more complex strategies. Other strategies also exist: for example, two-stage sampling may sample first households and then individuals within a household, or sample first schools and then pupils within the school. Note last that the sample size should be determined by the confidence intervals, namely the confidence that the researcher can have that the characteristics of a sample describe the study population as a whole (Fowler, 1993: 27). Often only government-funded surveys can afford to use random probability sampling, and most commercial market research samples use quota sampling. The sample design significantly affects sampling error and therefore some estimate of the amount of sampling error associated with any particular sample design is required to evaluate the representativeness of the sample; we note, however, that most of the studies collected for the EU Kids Online repository do not report (or calculate) confidence intervals or sampling errors; indeed details of sampling strategies are often poorly reported.

[14] Some authors (see Glassner and Moreno 1989) argue there is 'no lack of words in quantitative social inquiry' since in quantitative research words are 'would-be-numbers' while in qualitative research words present 'the very stuff of knowledge'.

[15] As defined in Calhoun (2002).

[16] This may be defined thus: *Internal validity* is the extent to which the conclusions of an empirical investigation are true within the limits of the research methods and subjects or participants used. *External validity* is '*the extent to which the conclusions of an empirical investigation remain true when different research methods and research participants or subjects are used.*' This encompasses *population validity* - the extent to which findings from one study can be *generalised* to the population, and *ecological validity*, '*the confidence with which the conclusions of an empirical investigation can be generalised to naturally occurring situations in which the phenomenon under investigation occurs*'. Related but different, the "ecological fallacy" is when one makes an inference about an individual based on the aggregate data for a group (Coleman, 2001).

[17] This is partly because 'facts' often rely in practice on self-report. So, although it seems more straightforward to measure, for instance, the average number of times that citizens go to the doctor than people's feelings and perceptions of a phenomenon, even the former case relies on the respondents' understanding of the question, knowledge required to answer the question, difficulties in remembering as well as social desirability. For subjective questions, validity is more often established according to whether the answers given are associated in expected ways with the answers to other questions or to characteristics of the individual surveyed: hence the wording of the questions, the scales of measurement applied and the response alternatives offered are of critical importance for increasing validity. Finally the construction of multiple questions that measure the same subjective state and the combination of the answers into a scale could also be of particular help (ibid: 86-92). Special attention is to be devoted to writing sensitive questions.

[18] Creswell and Miler, 2000; Guba, 1981; LeCompte and Goetz, 1982; Miles and Huberman, 1984; Terhart, 1985; Peshkin, 1993; Ambert, Adler, et al., 1995; Creswell and Miller, 2000; Kleinsasser, 2000.

[19] These are discussed in depth by several scholars (Barnett, 1998; Lee, 1993; Renzetti and Lee, 1993; Sudman and Bradburn, 1974; and Bradburn and Sudman, 1979; Bradburn *et al.*, 1989; Locander *et al.*, 1976; Sudman and Bradburn, 1974; Sudman and Bradburn, 1982).

[20] Either or both are evident in the widespread use of case study methods. Yin's (2003) work traces the uses and importance of case studies to a wide range of disciplines, from sociology, psychology and history to management, planning, social work, and education, whereas she provides examples of case study research discussing strengths of multiple-case studies, case study screening, and the case study as a part of larger multi-method studies. More importantly, Yin looks at challenges deriving from case study research from problem definition, design, and data collection, to data analysis and composition and reporting. Comparison of case-studies, in particular, and composition of different research aims, strategies, methods and data are worthy of further attention as they entail significant conceptual, methodological and practical challenges for the researcher. The specific designs involved may exemplify strategies of triangulation or complementarity.

[21] See http://www.talkingwithkids.org/.

[22] In the UK, one can consult the following, among others: The National Children's Bureau (www.ncb.org.uk/research/guidelines.htm); Barnardo's (www.barnardos.org.uk); NSPCC (www.nspcc.org.uk); The British Psychological Society (www.bps.org.uk/documents/Code.pdf); The British Sociological Association (www.britsoc.org.uk/about/ethic.htm); The Association of Internet Researchers (www.aoir.org/reports/ethics.pdf); The Market Research Society (www.mrs.org.uk/standards/codeconduct.htm). The British Psychological Society's statement on research ethics stresses the importance of informed consent (requiring child and parental permission for research with children) and of avoiding harm, so that *'Investigators have a primary responsibility to protect participants from physical and mental harm during the investigation. Normally, the risk of harm must be no greater than in ordinary life'*, the point being that research should aim to '*eliminate all possibility of harmful after-effects*'. Similarly, the British Sociological Association stresses that '*sociologists have a responsibility to ensure that the physical, social and psychological well-being of research participants is not adversely affected by the research'* and further, that *'research involving children requires particular care'*. The National Children's Bureau elaborates the complexities of informed consent from children, and adds requirements regarding following up later when pointing out that *'participating in a research study may have a significant impact on some respondents, both immediately or some time later'*. In the USA, where much research on harm originates, 'human subjects' regulation has become extremely restrictive in recent years, materially affecting the kinds of evidence that may be sought and, consequently, seriously limiting the potential for evidence-based policy.

[23] A standard guideline is to promise complete confidentiality to the child unless the researcher feels that the child's safety will thereby be compromised (e.g. if they tell the researcher that they plan to meet an online friend offline); even in such a circumstance, the first effort should be to inform a responsible adult with the child's advance permission.

[24] For example, in the UKCGO study, 57% of children and 16% of parents say the child has seen online pornography. First, one must ask if each means the same thing by 'pornography'. Second, one must ask why these answers are discrepant (are the children boasting, or using a more inclusive definition; are the parents underestimating for reasons of social desirability or because they really don't know what their children experience in private?). Third, one may conclude that, bearing in mind these likely

influences (which are often beyond the scope of a research project to answer), that the 'truth' lies somewhere in between – perhaps around one third of children have seen online porn. Last, one may place most confidence in the findings that are paralleled in both children's and parents' surveys – both report the incidence of exposure to increase with age, both report a concern about this exposure, both want tools to reduce personal risk of exposure.

[25] Heron and Reason (1997) point out two participatory principles of epistemic participation. Following the first principle, any knowledge is a result of the research conducted by a researcher who entered the research process with his own experiential knowledge. Participatory methods aim to facilitate the process of knowledge production as oppose to knowledge gathering, as it is known from interviews, surveys and observations. The second principle suggests that the people being studied have the basic human right to participate in the research design process as it aims to gather knowledge about them. In this perspective, researchers are not only researchers and participants are not only participants but they both experience and design the research as co-researchers and co-subjects. This involves a high level of reflexivity of the researcher and 'voice giving' to the participants. Acknowledging this, they advocated that co-operative/participatory research is grounded in the participatory paradigm and it is thus a fully participatory research with people, as opposed to the fully manipulative and controlling quantitative research on people rooted in positivism.

[26] An advantage of involving parents and teachers in research on children and media is that the respective educational concept receives a central importance. The attitudes of parents and teachers influence how the children relate to the media (cf. Paus-Hasebrink 2007). Besides that, to ask parents and educators helps to get a comprehensive concept of the respective child's world. This is particularly important in the case of young children who are not yet adjusted to temporal concepts and whose animistic-anthropomorphic way of thinking is influenced strongly by the momentary aspect of desire, and whose ability to distinguish between fiction and reality is still based on unspecified ideas.

[27] Computer-mediated or online interaction involves the exchange of information amongst individuals and groups online. It is primarily focused on individual relations and goals and entails an interaction with specific others whom one either knows initially or eventually comes to know through online communication (Katz and Rice, 2002).

[28] Virtual environments are digital 'stage sets' within a virtual reality, which is a computer-generated simulation in which the user experiences a sense of phenomenological presence or immersion in the environment (Shields, 2003).

[29] See, for example, the special issue of the Annals of Telecommunications, 62(304), March-April, 2007.

[30] HTML Cookies are small text files sent from a server to a web client, and returned unchanged. Their initial use was and is to store site- and browser-session-specific data, helping and facilitating the browsing experience. Cookies are not programs, as they cannot execute code (actions) on the client computer.

[31] See www.eff.org/Privacy/Marketing/web_bug.html.

[32] Informed consent is a condition whereby research participants can be said to have given consent for participation in the research that is based upon their full appreciation and understanding of the facts and any implications their participation in the research might lead them to.

[33] For example, the AoIR Ethics Working Committee, Committee for Scientific Freedom and Responsibility (CSFR) of the American Association for the Advancement of Science, Norwegian National Committee for Research Ethics in Social Sciences and Humanities (NESH).

[34] Indeed, some question whether the nation is itself a proper unit of comparison, given that they are neither self-contained nor homogeneous, and because the research phenomena of interest are no respecters of national boundaries (Chisholm, 1995). See also Hantrais (1999: 98), who argues that although nations 'afford a convenient frame of reference for comparative studies since they possess clearly defined territorial boarders…. "Nation" is, however, a contested and loaded concept'.

[35] Several strategies may be identified to overcome these difficulties. One is to produce a detailed template with which findings must be organised and reported. Another is to agree a checklist of explanatory factors that researchers have considered in the past when trying to make sense of cross cultural differences (for ICT, see Thomas et al, 2005; for mobile phones, see Haddon, 2004). Another tactic is to send 'a day-in-the-life-of' studies of UK families to researchers in other countries (Haddon, 2004), who are then invited to respond to what surprised them, and to explain why certain practices (in this study, use of the mobile phone) might be less common in their own countries. One thing that that has been clear from these strategies is that following any of these strategies takes some time.

[36] In a helpful account of the pragmatic considerations and compromises involved in comparative research provided by Sreberny-Mohammadi, et al. (1985), Haddon (1998), as well as by Livingstone and Lemish (2001), they reflect on the gap between ambition and achievement, noting that 'in practice it proved impossible to develop agreed guidelines for such an ambitious undertaking' (p.10). See also Kohn (1989) and Staksrud (2005).

[37] See http://ec.europa.eu/information_society/activities/sip/eurobarometer/index_en.htm

[38] For example, 6 national agencies were hired for a cross-national study in which the author was involved, and each conducted 6 groups in their own country. But they different greatly in terms of how much they interpreted in very general terms the processes taking place and how much they focussed on what the participants actually said. They differed also in how much evidence they supplied for their conclusions (e.g. providing actual quotations, or simply asserting what was happening so that the academic researchers overseeing the whole project simply had to take their word that their interpretation was correct). See Mante-Meijer and Haddon (2005).

[39] The stress on a systemic analysis differentiates Blumler et al's position from a strong ethnographic or contextualist position for although they agree with the critique of decontextualised comparison, Blumler et al presume that the dimensions or features of the system will be comparable across countries, albeit that their instantiation in any one country will be particular to that country.

[40] The case-oriented approach is typically considered a holistic approach oriented to complexity and historical specificity of individual cases.

[41] The variable-oriented approach includes mainly statistical tools.

[42] Such populations are very frequent on the macro sociological level (numerous examples of such units can be found in political science research, for example, countries, political parties, policy sectors etc.) or the mezzo sociological level (such as populations of companies in certain sectors, or formations of collective actors etc.).

[43] The logic behind this approach is to employ 'data reduction that uses Boolean algebra to simplify complex data structure in a logical and holistic manner' (Rihoux, 2006). Initially, a so-called truth table is produced which displays the list of all observed configurations. Each configuration is a specific combination of conditions (with 0 or 1 values) and a particular outcome (with 0 or 1 value). Software typically produces the truth table, displaying configurations as the combinations of given conditions for a certain outcome across the cases. The combinations are then systematically compared with each other (long formulas) and logically simplified (minimal formulas). This process is called Boolean minimisation, which basically reduces, through Boolean algorithms, long descriptions of configurations for all cases from the truth table to the shortest possible description, minimal formula. The researcher further interprets the acquired minimal formulas, possibly in terms of causalities. As Rihoux stresses, the use of QCA mimics an iterative and creative process. Possibly, a researcher starts with a pool of conditions inserted into a truth table. Through the process of getting to know each case better an optimal truth table is produced by excluding the conditions that are redundant and not necessary to acquire the good-quality minimal formula. Sometimes, contradictory configurations emerge whereby the same combination of outcomes values leads to a different outcome. In such cases, the researcher has to go back to the cases and re-examine the conditions in order to eliminate contradictions before continuing the analysis. Once an optimal minimal formula (without contradictions with the most parsimonious solution) is obtained, the interpretations are made by returning to the cases and regarding each case as a whole. Therefore, the amount of knowledge one has about their cases is crucial when doing the interpretations.

[44] Thomas et al (2005) provides a review discussing further examples of contextual (or cultural) factors that may shape the experiences of ICTs more generally. These include what might be called social structural factors. Examples are the degree of homogeneity versus heterogeneity in a nation and the extent to which countries were egalitarian or hierarchical, the role of religion, education, ethnicity, literacy and communication patterns with the outside world, in part reflecting the histories of migration (which relevant for the communications of diaspora in different countries). There are various elements from what might be called the 'social constructionist' tradition of writing (e.g. James and Prout, 1997) on how children's roles (and parents' roles) are socially constructed and are experienced differently in different countries (Haddon, 2004). Then there are the temporal structures within which people in various countries operate (covering such aspects as how fragmented these are and the time allocated to different activities as well as their timing), the subjective experience of time (e.g. the experience of time stress; Klamer et al, 2000) and cultural expectations about time, as exemplified by norms of communication and the rigidity of the boundaries between work and leisure times. We have the various cultural values that people had identified in the ICT literature (e.g. Hofstede, (1980) and Trompenaars (1993). Other examples of values included openness to innovation and the degree to which societies are individualistic or group-orientated, including family-oriented. Communication forms, patterns and expectations had been identified as potential influences in various writings on ICTs. This included the wider role in society of oral versus written communication, as well as the role of music and images in different cultures. Finally we have material culture, where different cultural values have shaped and become embedded in the physical world, as reflected in spatial considerations (especially the rural-urban division), national differences in housing characteristics and everyday artefacts themselves.

[45] Buckingham (2000) argues that even though these kinds of moral panics have always existed, these concerns take on different forms in different historical circumstances. Finally, he concludes that "contemporary anxieties about the effects of media on children are partly a displacement of much broader concerns about social change, but they are also a response to technological and cultural

changes in media themselves, changes which are inextricably tied up with the drive for new commercial markets" (Buckingham, 2000).

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