



Ofcom's Submission to the Byron Review

Annex 6: Literary Review

Harm and Offence in Media Content: Updating the 2005 Review

A report for Ofcom
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Introduction

Harm: material damage, actual or potential ill effect.ⁱ

1.1 Aims and scope of the review

This review provides a critical overview of recent research on the possible harms to children of exposure to media content. The aim is to identify evidence to guide policy and regulation designed to protect children.

It focuses mainly on empirical research published since 2005, as it updates the recent review published as Millwood Hargrave, A., and Livingstone, S., with others (2006) *Harm and Offence in Media Content: A review of the empirical literature*. Bristol: Intellect Press.

Where the previous review concerned possible harm and offence to children and adults resulting from exposure to content across nine media, this present review is more focused. It concentrates on children, in relation to each of three media – television, internet (including mobile telephony) and electronic games. It also updates the previous review in relation to parental mediation and media literacy.

This review identified empirical studies primarily by searching a range of extensive electronic and library resources, these being largely but not exclusively academic, though it also draws on information obtained from key researchers in the field. The body of empirical published research is expanding fast in some areas – especially in relation to the internet, though as in the earlier review, that published in the English language remains largely American.

It does not cover evidence for positive or pro-social benefits of the media, as these have been reviewed elsewhere. Thus it does not aim to offer a balanced judgement on the benefits versus harms of the media for children. It also focuses on content-related harms (rather than physical or health issues).

In what follows, we have incorporated the key points from conclusions of the previous review, updating these as appropriate.

1.2 A risk-based approach

While the concern of regulators is with harm, much of the research reviewed here deals with the risk of harm (by measuring incidence of exposure to risk, risky behaviour, or the use of certain media contents which may be harmful to some, etc.). Some of the evidence does demonstrate a link from exposure to 'actual' ill effect, although this is generally measured either experimentally in the short-term or by using correlational methods which cannot rule out all confounding factors. However, we note that the above definition of harm includes both potential and actual ill effects, and thus we discuss harm largely in terms of possible influences on behaviour and attitudes.

However, we argue also that the search for simple and direct causal effects of the media is, for the most part, inappropriate. Instead, we need an approach that seeks to identify the range of factors that directly, and indirectly through interactions with each other, combine to explain particular social phenomena. As research shows, each social problem of concern (e.g.

aggression, prejudice, obesity, bullying, etc) is associated with a distinct and complex array of putative causes.

The research reviewed here and in the earlier review suggests that the media may contribute – more or less, under different conditions – to these complex social problems. A risk-based approach would take into account the range of relevant factors at work and allow for the possibility of their interaction. It should also weigh the relative contributions of different factors in explaining the outcome at issue, thus permitting a balanced judgement of the role played by the media on a case by case basis.

For example, Anderson, Gentile and Buckleyⁱⁱ (2007, p.143) report a study from the US Surgeon General which compares the longitudinal effect sizes of several risk factors for aggressive/violence behaviour, in order to identify the relative contribution of exposure to media violence. The findings (with % variance accounted for in brackets, following each factor) were – gang membership (9.6%), video game violence (8.8%), psychological condition (3.6%), poor parent-child relations (3.6%), being male (3.6%), prior physical violence (3.2%), media violence (2.9%), antisocial parents (2.6%), low IQ (1.2%), broken home (1.0%), poverty (1.0%) risk-taking (0.8%), abusive parents (0.8%), substance use (0.4%). As noted also below, this leads them to observe that media violence is relatively influential as a cause of behavioural aggression among young people.

For the most part, however, research tends to examine cause-effect relations in isolation. We thus call for more research that puts possible media effects in context, seeking to understand how the media play a role in a multi-factor explanation for particular social phenomena (e.g. violence, gender stereotyping, etc), including an account of the relative size of effect for each factor so as to guide regulatory decisions based on proportionality.

1.3 Methodological issues and research gaps

“As homes become more complex, multi-media environments, and as media technologies converge, it must be a priority to develop and extend the available evidence base, so that we sustain our understanding of the differences across, and relations among, the changing array of media and communication technologies. The challenge is to seek ways of minimising risks, while also enabling the many benefits afforded by these technologies for our society and for the socialisation of our children.” (Millwood Hargrave and Livingstone, 2006)

As Millwood Hargrave and Livingstone (2006) noted, and as remains the case, this field encounters a range of theoretical, methodological and political difficulties in researching possible harms associated with media content. This is largely because different academic disciplines approach questions of media harm very differently. Typically, psychologists focus on evidence of harm to the emotions, beliefs, attitudes or social behaviours of individuals, preferring explicit measurement tools and, to isolate causation, experimental methods. Sociological and cultural researchers are generally critical of such approaches since they neglect the complex contextual factors that give meaning and shape actions in everyday life, potentially rendering experimental findings not generalisable to everyday life contexts. Both sides in this debate would agree that, in various respects, the evidence base is patchy and inconsistent and, for both practical and ethical reasons, some key questions remain difficult to research.

In consequence, persistent questions remain regarding how far the largely American findings may be applicable to the UK situation; how far the largely experimental research findings may be applicable to ordinary contexts of media use; and how far evidence relating to one medium (usually television) may be applicable to other, especially newer media. On the other hand, certain topics are attracting considerable research attention – especially in relation to the

internet, and to a lesser degree, electronic/video games; there is also growing interest in the potential effectiveness of parental mediation strategies and of media literacy.

Given a long history of contestation and debate within and beyond the academy, we suggested in the earlier review, and suggest again now, that research can only guide policy by supporting a judgement based on the balance of probabilities rather than on irrefutable proof. This balance of probabilities should also take into account the other factors likely to be affect the incidence of particular harms. As noted in the previous review, the research findings for media harm are generally ‘modest’ in terms of effect size, when this is indeed measured for either individual studies or using meta-analysis (“*Meta-analysis seeks to combine the analyses from all relevant individual studies into a single statistical analysis with an overall estimate and confidence interval for effect size*”ⁱⁱⁱ). For example, Anderson (2003) calculated the correlation across 32 independent samples studied in relation to games to be $r = 0.20$ (confidence interval, 0.17–0.22). This suggests that playing violent video games accounts for 4% of the variation in aggressive behaviour^{iv}. Sherry’s (2001) meta-analysis of 25 studies^v found a slightly lower correlation between video game play and aggression at $r = 0.15$ (see also Hearold, 1986, on television effects^{vi}).

We also note some pressing gaps in the research literature, including research on: vulnerable population subgroups; online technologies accessed via new/mobile platforms; new contents such as interactive/user-generated content, new forms of advertising and promotion, niche/extreme content; longitudinal studies that track consequences of exposure; comparisons of responses to the ‘same’ content accessed on different platforms; factors that effectively mitigate (or exacerbate) the effects of media exposure (especially media literacy, parental mediation).

Television

2.1 Summary and conclusions (incorporating and updating the previous review)

- Television is still an important medium, especially for young children (see Ofcom’s figures, below). The research included here primarily concerns violence, sexualisation and stereotypes, as these have attracted the most research attention. Other effects research is noted (though not discussed here), such as effects on scholastic performance and the effect of commercial activity.
- Much of the research presented here is US-based and thus experimental - i.e. based on quantitative and/or laboratory-style experiments; too often for our purposes, they focus on college students, and too little of the research evidence examines the viewing of age-appropriate material, although a number of studies do use content popular among the target group being examined. Thus the generalisability of research findings to everyday situations is not commonly demonstrated or discussed.
- Since the previous review, the present update has identified a number of recent studies – **these point to consistent, though not necessarily large, findings that support a case for media harms; these especially concern the short-term effects of violence, and a series of effects on attitudes.**
- **The evidence suggests that, under certain circumstances, television can negatively influence attitudes in some areas, including those which may affect society (through the creation of prejudice) and those which may affect the**

individual (by making them unduly fearful, for example). Thus, it seems that television plays a part in contributing to stereotypes, fear of crime and other reality-defining effects, although it remains unclear what other social influences also play a role, or how important television is by comparison with these other factors.

- It remains the case that one must consider the importance to the audience of certain variables in making sense of or justifying a portrayed act, including the context within which the act is set and the importance of identification and empathy with the protagonists.
- The previous review especially showed clear **audience differences based on gender** (in particular, boys seem to be more influenced by violent content) and **age**; but also **family settings, a predisposition for a particular programme genre, the way in which the content is used** and other such variables all appear to play a part in the way content is viewed and assimilated.

2.2 Recent research evidence (2005-2007)

In their extensive review of media use and exposure among American children, Comstock and Scharrer (2007) define the media in four ways^{vii}.

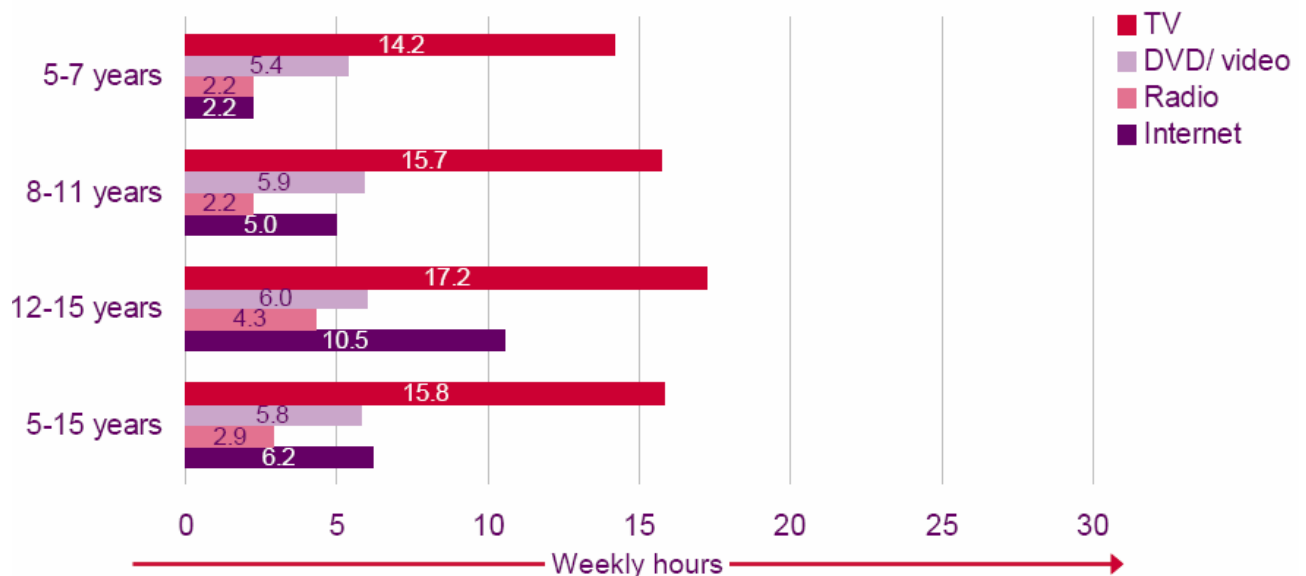
- Print
- Audio – primarily music (this is the only media activity that overtakes television viewing, with 15-18 years more likely to listen to music than consume television)
- Screen
- Interactive- such as computer and video games, requiring active participation

“The feature that distinguishes screen from interactive media is the content that is not open to alteration by the decisions of the user.” (Comstock and Scharrer 2007, p.12)

This update of the research into the evidence for harm and offence considers two of the four categories of media: screen and interactive. However, ‘screen’ omits cinema/film/DVD and concentrates on television content. Interactive media are discussed elsewhere in the internet section. True interactivity between television content and the viewer is not yet achievable.

Recent research by Ofcom notes that for children of all ages in the UK (5-15 years), television viewing remains the medium that is most used (15.8 hours per week), although viewing is in decline in general^{viii}. For older children (aged 12-15) television viewing is even higher at 17.2 hours, as shown in the figure below.^{ix}

Figure 1: Media Consumption - among children 5-15 years



Base: Parents of children aged 5-11 and children aged 12-15. Source: Ofcom's *Young People's Media Usage Survey*, saville rossiter-base, April/ May 2007

While Comstock and Scharrer note that use of television (time spent viewing) is also high in the US, their analysis of the research shows that relatively low levels of attention are given to much television viewing. It is when choices are being made among media and media content that more attention is paid to preferred types or genres of content. The review looks at the way in which interest in the media develops and suggests that viewers start to use television images to form their own identities and vision of the 'outside' world and society from quite a young age. These potential socialising effects of the media are not only important when thinking of how perceptions of the outside world may be formed, as discussed extensively in the review conducted by Millwood Hargrave and Livingstone (2006), but also in terms of the way in which people may feel marginalised or excluded: *Some people seldom see people like themselves on the screen.*

Koolstra (2007) undertook a small scale study in the Netherlands (N=96) to examine the relationship between how the world is viewed and how that is affected by portrayal in fictional television programmes^x. Koolstra looks particularly at so-called fiction-to-news confusion i.e. viewers may remember fictional television stories as news. He finds that participants are often so confused, even when they are exposed to 'relatively' many short television content extracts that contain – in particular - threatening, violent events.

In coming to a conclusion about the role of television in children's lives and its possible effects and influences, Comstock and Scharrer note a sharp divide between content designed for young children and that made available to older children (from about 10 years of age):

"We are struck by the realisation that there are largely two different worlds of content – the protective, educational, and prosocial bubble provided by media for the very young (infants, preschoolers, and children of early elementary age) and the sometimes harsh and often sensationalised material of media for older children, teenagers and the general audience (music television, internet sites, primetime television, video games). The two exist with little buffer forcing an abrupt

change when 'children's media' are no longer satisfying." (Comstock and Scharrer 2007, p.117)

This echoes the findings made by Ofcom (2007) in the UK that *'parents are relatively content with provision for pre-school and younger children, but want more drama and factual programming for older children and young teenagers'*^{xi}. See also Vandewater et al (2007) for a discussion of media use among very young children in the US^{xii}.

For Comstock and Scharrer in the US, the importance of parental mediation and the circumstances in the home are essential to the discussion about 'effects':

"Our own misgivings (about the possible negative influences of television) are based on foregone opportunities – the ability of parents by their comments to increase what is learned from television when it has educational value, to increase understanding of whatever has been presented, to temper fear and uneasiness when the medium presents frightening or threatening images and events, and occasionally to guide tastes and references in what the media offer." (Comstock and Scharrer 2007, p.78)

A further discussion about parental mediation and media literacy and their efficacy in reducing or protecting against effects or influence is provided elsewhere in this update. Much of the recent research found while considering material for this update includes data that have looked at the effect of media use, and television viewing in particular, on children, particularly young children, in terms of their scholastic and other social performance^{xiii}^{xiv}^{xv}. While this is a harm of sorts, it is not considered here, and neither are the commercial effects of television advertising or marketing.^{xvi}

Violence

The Federal Communications Commission in the US recently considered the impact of violent television programming on children^{xvii}. In its report, the FCC drew extensively on the empirical research previously outlined (see Millwood Hargrave and Livingstone, 2006), agreeing that it shows a correlation between viewing such content and aggressive or violent behaviour. While violent content, unlike indecency, is protected under the First Amendment in the US, the report suggests there are *'government interests'* at stake which would allow for such content to be regulated (as for indecency and this includes the protection of children). It also reviewed some further studies that either develop or extend the work previously noted, discussed here.

Bushman and Huesmann (2006) undertook a meta-analysis of 431 studies that had been conducted in the US to test whether the data are consistent in finding short-term and long-term media effects for aggressive behaviour^{xviii}. They considered all visual media (television, film, video games, music, and comic books). Their analysis shows greater short-term effects of violent media for adults than for children, in terms of aggressive behaviour, attitudes and other negative arousal levels. For children there appear to be greater long-term effects, and the researchers argue that reported exposure to violent images should be guarded against. It is important to note that these studies purporting to show such long-term effects do not carry forward these measures of effect into adulthood so a true longitudinal outcome is not known. The researchers also point out that many meta-analysis are based on available publications, which may in itself create a bias (see Ferguson, 2007^{xix}).

"In a meta-analysis, it is difficult to find unpublished studies. Studies with non-significant effects are often not published; they end up in file drawers rather than in peer-reviewed journals. If studies in file drawers had been published, the average correlation would be smaller." (Bushman and Huesmann 2006, p.350)

Krcmar and Hight (2007) undertook research among very young American children (aged between 33 months and five years old)^{xx}. They claim to show that exposure to even slight aggressive visual stimuli (such as an 'action' character) could create a more aggressive response (in this case the way in which a story was ended by the respondent). They suggest this shows that a single exposure to an action cartoon could help establish a mental model for aggression. This finding echoes the observation about video games that Anderson et al (2007) make^{xxi}, suggesting that even cartoon violence can have an influence. (For a review of the literature on cartoon violence see Kirsh, 2006^{xxii}.)

Zillmann and Weaver (2007) in the US noted that, in an experiment in which men had to increase the pressure of cuffs on another person's arm, those men that scored high on measures of hostility used aggression more frequently than men scoring low on that trait^{xxiii}. Further exposure to a violent film segment resulted in more frequent use of aggressive responses among men who scored higher in terms of physical aggression than exposure to a non-violent film segment.

Kahlor and Morrison (2007), also in the US, investigate the role of television viewing among young women (N=96) as contributing to an acceptance of rape myths (defined here as *false beliefs and stereotypes regarding forced or attempted sexual intercourse and the victims and perpetrators of such acts*)^{xxiv}. They suggest that content analyses of television programmes in the US support such myths. They find a significant positive relationship between television use and rape myth acceptance and perceptions that rape accusations are false. They do not find a relationship between television use and an estimation of the prevalence of rape in US society so the hypothesis that depictions may increase fear of rape was not proven. It is unclear from the research report how, and if, different genres affected these attitudes (the study covered television entertainment, television news, and music).

Coyne and Archer (2005), in the UK, looked at gender differences in the use of indirect aggression, and the effect that viewing such content may have^{xxv}. Indirect aggression is defined as:

"a manipulative and covert way of harming others by using the social structure as a way to exclude, ostracize, and harm others Indirect aggression can take many forms including gossiping, destroying friendships, spreading rumors, and breaking confidences. This type of aggression is particularly effective as a way of harming females, as they place great value on relationships and social standing, the very facets of life that indirect aggression targets to harm." (Coyne and Archer 2005, p.234)

They asked a sample of 347 adolescents (aged 11-14) in the UK to list their five favourite television programmes (which were analysed for the amount and type of aggression they contained). Students were required to nominate fellow students who were considered to be aggressive, either directly (using physical aggression) or indirectly. Coyne and Archer find that peer-nominated indirectly aggressive girls, in particular, watch more indirect aggression on television than any other group. Peer-nominated physical aggression was predicted by other aggressive behaviours, but not by televised physical or indirect aggression^{xxvi}.

Ostrov et al (2006) undertook a 2 year study of a small sample (N=78) of American pre-school children and considered their media exposure, the type of content viewed and measures of aggression (as well as prosocial behaviour)^{xxvii}. They find that parental reports of media exposure are associated with relational (or indirect) aggression for girls and physical aggression for boys at school.

Zimmermann et al (2005) used data from the National Longitudinal Survey of Youth in the US to look at the role of parental influences and television viewing, among other factors, in subsequent bullying behaviour^{xxviii}. They argue that each hour of television viewed per day at

the age of 4 years was associated with a significant effect for subsequent bullying behaviour. **Each of these studies supports the claim that viewing violent television content may affect aggressive attitudes or behaviour, generally in the short-term. However, all these studies are open to contention, especially as many of them are laboratory-based and are not able to be considered within a 'real' home or other viewing environment. Longitudinal data to examine how any short-term effects noted may translate into long-term changes is also much needed.**

Sexualisation

A recent report from the American Psychological Association (2007, p.1 of Executive Summary), which examined the impact of sexualised messages targeting girls across diverse media, defines sexualisation as that which occurs when:^{xxix}

- “a person’s value comes only from his or her sexual appeal or behavior, to the exclusion of other characteristics;
- “a person is held to a standard that equates physical attractiveness (narrowly defined) with being sexy;
- “a person is sexually objectified—that is, made into a thing for others’ sexual use, rather than seen as a person with the capacity for independent action and decision making; and/or
- “sexuality is inappropriately imposed upon a person.”

The report identifies a series of risks associated with sexualisation, including the media sexualisation of girls, including cognitive underperformance, mental health and eating disorders, diminished sexual health, reduced self-esteem and negative attitudes from others.

The APA report contains many studies of media content. We have identified the following recent examples. Eyal et al undertook a content analysis of the 20 most popular television programmes among teenagers in the US, examining the sexual messages contained therein^{xxx}. They compared findings over two seasons. As had been noted in the previous review which considered other such work (reference needed), a high percentage of programmes made reference to sexual content (70% in 2004-05 compared with 83% in 2001-02). However much of this was in discussion and much of it was between adults (none between children under 13). The research also looked at the discussion of risks and responsibility associated with sexual relationships. As had been noted previously, there was little discussion of these risks although the research found that no programmes in 2004-5 depicted positive consequences of intercourse. Thirty three per cent showed no consequences at all and 67% showed negative consequences (NB the relatively small sample of programmes). Past British-based content analyses also found the sexual content in most programmes was ‘mild’ in nature and was often verbal, rather than a depiction.

Similarly, Farrar (2006) undertook a small scale study in the US (N = 188) and noted that women who saw programmes featuring condoms had more positive attitudes about condom use than women who had not seen such material^{xxxi}. Importantly however, the sample’s own intentions to engage in safe sex were unaffected by any of the media conditions.

A re-analysis of data collected from the American National Longitudinal Study of Adolescent Health between 1994-96 by Ashby et al (2006) notes that there is an increased risk of having sexual intercourse within a year from the study if the respondents are under 16 years old, watch television for 2 hours or more each day, have a family that disapproves of sex and where there is no parental mediation or regulation of television^{xxxii}. However these data, while

much used in the US, would seem to have little to commend them in the UK where research on such issues would take account of many other factors, including peer groups and socialisation.

Similarly in a longitudinal study (over two years) of over 1000 adolescents in the US, Brown et al (2006) found that the more their sample was exposed to sexual content in television, film, music, and magazines, the more likely they were to have sexual intercourse when 14 to 16 years old^{xxxiii}. This was true even after factors such as sexual behaviour at the start of the study were accounted for. This was particularly true for white adolescents while black teens in the study seem to be more influenced by how they perceive the expectations of their parents and peer groups than the media^{xxxiv, xxxv}.

Overall, the research suggests an association between television viewing and actual sexual behaviour. However, other research (already reported on, and particularly in the UK) suggests **that** young people have a more active relationship with the media and many factors contribute to the way in which they use the media to rehearse their sexual behaviour and express their sexuality. Much depends, therefore, on the nature of the portrayal and the interpretative response of children and young people.

Stereotypes

Hoffner and Buchanan (2005) asked just over 200 young American adults to complete questionnaires about their perceptions of, and responses to, their favourite fictional television characters, both male and female^{xxxvi}. They found that respondents most wanted to be like (*wishful identification*) same-gender characters and with characters who were similar to them in attitudes:

“men identified with male characters whom they perceived as successful, intelligent, and violent, whereas women identified with female characters whom they perceived as successful, intelligent, attractive, and admired.”

Both male and female respondents identified more strongly with successful and admired characters of the other gender.

Comstock and Scharrer (2007) note in their review of the research literature that there have been changes in the amount of representation in American television programming based on race and ethnicity (especially for African-Americans who are more widely seen) but they also note that stereotypes still exist in terms of the characters portrayed.^{xxxvii} They also remark on stereotypes based on age, disability and sexual orientation.

The harm and offence review had noted a number of (largely American) studies that had shown how news reporting could affect attitudes towards different sectors of society, particular in terms of ethnicity. A more recent study by Dixon (2006) showed that this remains true with exposure to black suspects in American news programmes affecting attitudes to assessments of culpability and perceptions of crime in society, among other factors^{xxxviii, xxxix}.

Diefenbach and West undertook a content analysis of American television programmes and surveyed 419 respondents to examine the hypothesis that media stereotypes affect public attitudes toward mental health issues^{xl}. They found that portrayals of mental health disorders are negative with the mentally disordered portrayed as 10 times more likely to be a violent criminal as non-mentally disordered television characters. The survey also shows that as television viewing increases, so does a concern among viewers about personal danger from such people.

Similarly Wahl et al (2007) conducted a content analysis to show that children's television programming in the US also contained negative representations or disrespectful language about those with mental health issues^{xli}.

In contrast, Zoller and Worrell (2006) found in their study in the US of the audience's interpretation of televised depictions of multiple sclerosis (MS) in the television drama *The West Wing* that participants related to the depictions variously depending on their own physical and social experiences with the illness^{xlii}:

"Participants expressed a desire to see more symptoms depicted, and they noted concern about the identities communicated to the public about people with MS and its influence on their daily, lived experience."

The study – although small in terms of sample size - is of interest because it employs a number of qualitative methods, including a focus group, individual interviews and the collection of electronic message board posts.

Another area in which Comstock and Scharrer find evidence of stereotyping is body image, with 'thinness' aspired to. This is true on television and also in video games where, they note, female characters have very thin bodies yet are highly sexualised with large breasts and hips while men are portrayed as being very muscular.

Tiggemann (2005) asked nearly 1500 students (N=1452) in Australia to fill in questionnaires which measured attitudes to eating disorders, ideals of physical appearance and uses of television^{xliii}. It was found that total television time was not related to any body image variable for either boys or girls, what is important is the type of material viewed and the motivations for watching it. Tiggemann finds that the time spent watching soap operas is related to a drive for thinness in both boys and girls, while music videos are also related to a desire for muscularity in boys.

Dohnt and Tiggemann (2006), also in Australia, find that a desire for thinness is affected by peers for girls as young as 5 years (N=97) while media become more influential as they get older^{xliv}. They argue that:

"as early as school entry, girls appear to already live in a culture in which peers and the media transmit the thin ideal in a way that negatively influences the development of body image and self-esteem."

Stern, Russell and Russell (2007), considering an advertising and marketing effect, used an online survey of American respondents to examine how long-term exposure to negative role models in soap operas might have a negative effect on the fans of such content^{xlv}.

"The relationships (viewers had with the characters) are unhealthy not only because the characters are poor role models but also because the viewers can become addicted to soaps and substitute surrogate friends for real ones. The themes provide insight into the negative influence of damaged heroines on viewers who are repeatedly exposed to depictions of subordinate and victimised women whom viewers observe closely, accept as real and consider friends." (Stern et al, 2007, p.20)

Similarly, Aubrey finds negative effects upon American women's perceptions of their own sexuality based on their consumption of soap operas and prime-time dramas^{xlvi}. These findings are in contrast with research in the UK which finds positive effects from viewing soap operas, particularly by raising social issues and concerns (Henderson, 2007^{xlvii}). This may reflect the distinctively realistic, 'gritty' style of UK soap operas, in which strong female characters are predominant.

Ferguson (2005) reports on an experiment in which participants in the US were exposed to an episode of the Jerry Springer Show^{xlviii}. The show had female guests who were involved in either promiscuous or non-promiscuous behaviour. The results show that those exposed to promiscuous women perceived a victim of sexual harassment as less traumatised and more responsible for the event than those who saw women who were not involved in promiscuous behaviour. Ferguson draws a number of conclusions, including:

“(i) The present findings demonstrated that the influence of exposure to images of promiscuous women on subsequent judgments of sexual aggression can be mediated by the extent that the promiscuous female stereotype is applied to the victim.

(ii) The findings also indicate that exposure to nonpornographic images of promiscuous women from "easily accessible" media sources (i.e., a popular television program) can have deleterious consequences.

(iii) The findings indicated that the impact of exposure to images of stereotypically sexual women in a popular television show was not moderated by the extent of previous exposure to that show.”

Romer, Jamieson and Jamieson (2006) report on a 4-month analysis of suicide news reporting in 6 US cities in 1993 and the incidence of deaths by suicide for three age groups (15-25, 25-44, and older than 44)^{xlix}. They find that local television news is associated with increased incidence of deaths by suicide among those aged under 25 years, while newspaper reports are associated with such deaths for both this group and those aged over 44 years. However they also note that there is no such increase in the sample of 25-44 year olds and suggest that, for this group, media depiction may have inhibited suicide.

Internet

3.1 Summary and conclusions (incorporating and updating the previous review)

- The evidence from this review on the potential harm from content provided through television and video games is clearly linked with the type of material contained in that content – for example, violent content or material that depicts sexist stereotypes and the potential effect that may have on aggressive behaviour or on attitudes. Many researchers assume that similar effects will occur if the same material (from television, games or film) is encountered online, but this has not represented a distinct line of empirical inquiry.
- Research conducted on the potential harm from online content includes some studies on the effects of viewing pornography or violent content though, since the research is rarely experimental (i.e. controlling the content viewed), it is less clear exactly what content is at issue. Some researchers, however, are concerned that such content is more extreme than that generally available on other media. Since this raises ethical issues, particularly when researching the risk of harm for children, there are difficulties in calling for more research here.
- Most research regarding potential internet-related harm relates to risky contact rather than content, primarily that involving interaction with other internet users. Indeed, this update found a number of studies that addressed the risk of inappropriate contact (e.g. bullying - for which more research exists than for the first review, and also online contact with strangers). The research suggests that such contact may put users at risk of harm, either directly (as in meeting strangers in dangerous situations) or indirectly, from the consequences of their online behaviour.
- Some phenomena are new to the previous Harm and Offence review, especially regarding the uses of social networking sites. Research on social networking sites has concentrated on the internet, although these are also available on mobile telephony as a delivery platform. For user-generated content, there is still little or no research yet. We have also considered excessive internet use ('addiction').
- There are differences in the principal sites used – in the UK, Bebo (and then MySpace¹) is currently more popular while in the US much of the research has looked at Facebook, among others, partly because of relative popularity, partly because US research tends to concentrate on university students (who use it).
- Research on the risk of harm has concentrated on social networking sites (raising issues of privacy) rather than information uploaded onto user-generated content sites such as YouTube (NB these are increasingly populated by 'professionally' produced material).
- For social networking especially, the issue of verifiability and anonymity is a problem. A significant proportion of young people communicates with strangers online and post material about themselves which would be considered 'private' in most circumstances. The ability to restrict access to sites is known about but not always used. Thus, knowingly, some young people give away inappropriate (private) information publicly (allowing access to 'anyone'). However, it seems likely that many more also do so inadvertently, as a result of limitations in both internet literacy and interface design.

- **This leads to concerns about the possibility of underestimating the unanticipated or future consequences of making private information public,** especially since it appears that many young people have an inadequate understanding of the long-term consequences of publishing such information (e.g. employers are reported to look at social networking sites when considering employees)
- The risk of inappropriate contact (especially in relation to sexual predation), harassment and bullying (including the easy dissemination of harassment or bullying content to others in the network) represent significant and growing policy concerns when considering the regulation of the internet.
- **Research suggests young people may be aware of the risks, especially regarding social networking sites, but this awareness of these issues and problems is not always translated into action.**
- Thus there is growing evidence that, notwithstanding their many advantages and pleasures, social networking sites permit young people to create profiles that expose the individual or that ridicule or harass others, that using such sites for extensive periods of time (as is common) may isolate users of these sites from contact with 'real' people, albeit only for a few, addicted users.
- **In short, the widespread accessibility of the internet, along with its affordability, anonymity and convenience appears to increase the likelihood of media harm; although some argue that there is little new about online content, familiar contents merely having moved online, most disagree, expressing concern about the accessibility of more extreme forms of content that are, potentially, harmful and offensive.**
- The lack of clear definitions of levels or types of pornography, violence, etc on the internet, where the range is considerable, impedes research, as do (necessarily) the ethical restrictions on researching the potentially harmful effects of online content, especially but not only on children.
- Despite the paucity of direct research on online harm to children (given practical and ethical considerations), there is a growing body of national and international research on children's distress when they accidentally encounter online pornography or other unwelcome content.
- It also appears likely that when children receive hostile, bullying or hateful messages, they are generally ill-equipped to respond appropriately or to cope with the emotional upset this causes; similarly, parents are unclear how they can know about, or intervene in, risky behaviours undertaken – deliberately or inadvertently – by their children.
- Little or nothing is known about how young people respond to hateful content, especially in term of how the targeted groups (mainly, ethnic minorities) respond. Nor is much known regarding the use of niche sites – such as those that promote suicide or anorexia, though research is beginning to accumulate here.
- In general, the case for further research seems clear, firstly in relation to the characteristics of vulnerable groups (including strategies for intervention) and secondly in relation to the ways in which the internet seems to support or facilitate certain kinds of harmful peer-to-peer activity.
- The EU consultation on online technologies for children discusses consumer detriment, and we found other references to, for example, infringement of privacy as data are

collected from internet traffic and used by advertisers or marketers but neither of these issues is considered in this update. The EU consultation also made a number of suggestions for future research, suggestions with which we would agree:

- *The importance of the broader context for the consequences of online communication and need for longitudinal studies*
- *To improve the understanding of risk in the relationship between online/offline worlds*
- *The impact of online incidents: how the use of online communication complement abuse through traditional methods; more data on types, methods and rates; and tracking of online child abuse incidents*
- *Identifying which types of websites attract both children and sexual predators*
- *The (emerging) link between depression and grooming, in both abuser and abused*
- *Risks evolving into actual harm to children; the precise nature of harmful consequences*
- *Measuring the level of trust in trans-generational communication*
- *Auditing online content aimed at children (EU, 2007, p.9)^{li}*

3.2 Recent research evidence (2005-2007)

When reviewing the literature on the Internet, the issue of anonymity is seen as a key consideration when discussing either the potential positive or negative influences of the Internet. Some of these are discussed below.

We note that there are other putative harms that are not within the purview of this update, with its focus on the protection of children, and these need to be considered at some stage. These include ongoing concerns about verifiability and veracity of content on the internet, about the dissemination of information that is untested for accuracy for example. In part, this is a media literacy issue, but media literacy relies on the availability of content features by which people may ordinarily discriminate public from commercial content, or professional from amateur content, or legal from illegal content. Within this debate one must not forget the self-regulatory features of many of the social networking and user-generated content sites which use self-reporting and self-regulatory measures to remove content that may be inappropriate or, indeed, illegal.

These further challenges will be exacerbated by the introduction of Web 2.0. As one polemic commentator complains^{lii}:

"In the digital world's never-ending stream of unfiltered user-generated content, things are indeed often not what they seem. Without editors, fact-checkers, administrators or regulators to monitor what is being pushed, we have no one to vouch for the reliability or credibility of the content we read... There are no gatekeepers to filter truth from fiction, genuine content from advertising, legitimate information from errors or outright deceit. Who is to point out the lies on the blogosphere that attempt to rewrite our history and spread rumour as fact?" (Keen, 2007, p.64-65)

Within its report of a public consultation on online technologies for children, the European Commission tabulates the differences between Web 1.0 and Web 2.0 thus^{liii}:

Web 1.0

Downloading
Consuming
Corporate
Separate Media
Static

Web 2.0

Uploading
Creating
Personal
Converging Media
Interactive

It is the interactive and creative elements of Web 2.0 that offer tremendous opportunities to use the world wide web, but these increase concerns about the vulnerability of users, especially children. The report suggests that research is structured into 3 Cs (content, contact, conduct) while recognising that a child using online services can fall into all three categories.

The commercialisation of the internet is also a concern, and children's vulnerability to persuasion or exploitation here is still little researched (the NCC/Childnet in the UK is about to issue a report on this topic, and the long history of research on television advertising to children offers some indication of likely effect; for research in the US on this issue, see also Moore 2006^{liv}). Research increasingly charts the rising volume of online advertising, as well as the range of strategies employed.^{lv} But little is yet known of its effects, though research on the commercialised media environment generally occasions growing concern (see Nairn, et al, 2007).^{lvi}

That the internet is much used by those that have access to it is not in doubt. The Mediapro survey (2006) surveyed 7393 young people aged 12-18 in 9 European countries and Quebec^{lvii}. The project, funded by the European Union, used a common questionnaire administered to the entire sample. Based on the results from the questionnaire, 240 respondents were interviewed in person, again against an agreed moderator's text. The study found that uses of the internet are based on the following activities:

Activities on the Internet (% sometimes/often/very often)

	Search engines	Email	Instant Messenger	Chat rooms	Downloading
Belgium	95	74	81	28	58
Denmark	92	66	87	26	50
Estonia	90	69	88	33	73
France	94	97	69	32	49
Greece	81	46	39	41	65
Italy	86	59	49	33	59
Poland	91	62	75	34	67
Portugal	95	69	77	38	60
UK	98	81	78	20	60
Average	91	66	71	32	60

At the time of the fieldwork (September 2005-March 2006), the use of search engines was almost ubiquitous, while instant messaging and email were used by over two-thirds of the sample. At that time creating content was far less common and this may well have changed in the intervening two years, especially if one considers social networking sites.

Some lines of research have looked at the impact of Internet use on literacy and other forms of social development but these are outside the remit of this study. However there has been a significant amount written about internet addiction (and also video game addiction). That is,

dependency on, and excessive use of, the internet. Widyanto and Griffiths (2007) conducted a literature review of the evidence for internet addiction, with Griffiths arguing that 'excessive internet use' may be better terminology^{lviii}. Nonetheless Griffiths accepts that excessive use has negative effects (he cites neglect of work and social life, loss of control as examples from his UK-based research) that are comparable to addictions. His premise is that the addiction may not be to the internet per se, but to the content available through that medium (such as online gambling). In an earlier study, Niemz et al (2005) had suggested that 18% of a sample of just over 300 students in Britain were excessive Internet users – a high proportion^{lix}.

'Stranger danger'

In-school surveys in the UK conducted by CEOP in 2006 suggest that 25% of children and young people have met offline someone that they first contacted online. The report does not comment on the consequences of such meetings, It does note, however, that "*there is insufficient data to be able to accurately qualify and quantify the threat presented by sex offenders who target children in the online environment*" (p.5). The reports submitted to CEOP from the public suggest considerable concern over grooming, this being the most frequent reason for reporting. Their recent report^{lx} comments that:

"it is consistently apparent from the reports that children and young people have often placed themselves at risk online by engaging in risky, cybersexual behaviour that may have incited, catalysed or otherwise facilitated the resulting abuse scenario" (CEOP, 2007 p.12).

The EU-commissioned Eurobarometer study (2007) included focus groups with children aged 9-10 and 12-14 in 29 countries^{lxi}. The study, part of a continuing series of research funded by the EU, suggests that older children feel themselves better equipped than younger ones to engage in risky behaviour (particularly regarding meeting in person strangers met online). The Mediappro study (2006) found that nearly half (47%) of children surveyed say they never talk to people on the internet that they do not know, and 22% say they do so rarely (by implication, 1 in 3 do meet new people online). The Norwegian SAFT (Safety Awareness Facts and Tools) survey of 888 9-16 year olds (2006) found that:^{lxii}

- 34% of online chatters (22% of all 9-16 yr olds) have been invited to a face to face meeting with someone they met online
- 22% of online chatters (15% of all 9-16 year olds) have met offline someone they first met online, an increase on 2003 figure, and a behaviour more common among those dissatisfied with friends/school/family, and there is an increase in physical and psychological abuses related to these net meetings.

In the USA, market research conducted by Cox Communications (2007) found that almost seven in ten teenagers (69%) receive personal messages from a stranger^{lxiii}. However 57% say they would ignore messages from someone they do not know while under a third (31%, still a significant proportion) say they reply. This survey also found that 16% of these teenagers say they would consider meeting someone in person that they had only met online, while 8% say they have done so. We do not know whether sensible precautions were taken, though similar surveys suggest that often young people do not tell an adult when they go to such meetings, though they do often take or tell a friend and, in the vast majority of cases, there are few if any harmful consequences.^{lxiv}

A large scale national survey in the US (interviewing 1500 young people aged 10-17) conducted by Wolak et al (2006) repeated a survey previously conducted in 1999^{lxv}. This later survey found that a smaller proportion of respondents say they have communicated online with people they do not know than had said the same in 1999 (34% compared with 40% in

1999), and had received slightly fewer unwanted sexual solicitations (13% vs. 19%). Unwanted solicitations were, however, growing from acquaintances while reducing from strangers.

Similar research across Europe is now being conducted, revealing variable levels of online risk. A survey of 1545 12-17 year olds and 1852 parents in the Czech Republic (2006) found that:^{lxvi}

- 84% of those who make friends online (49% of all teens) have given out their email address (and 73% their picture, 60% phone number and 23% home address)
- 66% say they are often invited to contact unknown others; 2 in 3 such invitations result in a face-to-face meeting, which almost 70% attend alone (only 22% tell their parents; yet 63% of parents said their child does not go to such meetings)
- Do parents inform their children about safe usage of the internet? 82 % parents say yes, only 39% children say yes.

In Bulgaria, the 'Child in the Net' survey (800 12-17 year olds interviewed offline and 590 online, 2006), finding that:^{lxvii}

- 38% internet users met in person somebody they got to know online (11% often)
- 12% often experienced insistent, persistent and unwelcome attempts to communicate with them (often about sex), and 20% have experienced this at least once
- 4 in 10 are unaware of the risks of meeting online contacts offline

And in Poland, an online survey of 1779 12-17 year olds and 687 parents (2006) found that:^{lxviii}

- 68% internet users had been invited to meetings with online friends – 44% of those invited went to the meeting, half of them alone; 1 in 4 of those who went to the meeting described the behaviour of the other person as 'suspicious'
- Nearly 30% of parents did not consider the internet a threat to children

Each of these studies suggests that, while there may be increasing awareness and understanding of the potential dangers of associating with strangers 'met' online, significantly high proportions of young people still do so, and many are confused about the relation between acquaintances, 'friends of friends' and strangers.

Reporting high figures of sexual activity online, the Remco Pijpers Foundation online survey of 10,900 teens under 18 years in the Netherlands (2006), focused on social networking, found that:^{lxix}

- 82% boys/ 73% girls had flirted online in past 6 months
- 1 in 4 boys/ 1 in 5 girls had cybersexual experiences,
- 72% boys/ 83% girls received sexual questions
- 40% boys/ 57% girls asked to undress on webcam; 1:3 boys/ 1:10 girls did
- 47% girls received unwanted request for sexual act on webcam; 2% did

- 62% girls/ 13% boys dislike receiving sexual questions online
- 35% girls/ 12% boys claim a negative experience
- 9% girls/ 3% boys posted sexual photos and regretted it

It is unclear whether this activity took place with strangers or among peers, though the implication is that mainly it was among peers ('friends' and 'friends of friends'). Notably, teens appeared aware of the risk of 'paedophiles' but were unclear about boundaries among teens.

Peter, Valkenburg and Schouten (2005) conducted a survey among just over 400 teenagers in the Netherlands^{lxx}. They find that the younger respondents in the sample (aged 12-14) are more likely than older adolescents to talk to strangers online. The research also finds that those who engage in long chat sessions are more likely to engage with strangers, than those who come in for shorter periods, although more frequently. It was found that it was a desire to meet new people and entertainment that are drivers for such interaction, and not that the sample find it difficult to make social contact.

Bullying and other forms of harassment

The earlier report on the evidence for harm and offence (Millwood Hargrave and Livingstone, 2006) had noted that research was scant on cyber-bullying. Some further research has been undertaken since that review. Deboelpaep (2006) had found in a sample of young people in Flanders that nearly two thirds of his sample (64%) described cyberbullying as a significant problem^{lxxi}.

In the UK, the MSN Cyberbullying Report (2006, UK, N=516) found that 11% of 12-15 year olds had been bullied online (18% girls, 7% boys), 74% told no-one; 62% know someone who's been bullied online; 1 in 20 admit to bullying someone else online.^{lxxii} The NCH Mobile Bullying Survey (2005, N=770 11-19 year olds) reported slightly higher figures:

- 20% had been bullied/ via text/internet/email, 73% knew the person; for 26% it was a stranger
- 10% had photo taken of them that made them uncomfortable/ embarrassed/ threatened; 17% of those said it was sent to others
- 11% said they'd sent a bullying or threatening message to someone

In Ireland, the Anchor Watch Your Space survey (a survey conducted by members of a youth centre among their peers) showed that 52% of the 375 respondents aged 10-20 had encountered bullying on a social networking site, although they themselves had not necessarily been bullied^{lxxiii}. These much higher figures are echoed in a small study by Li (2005), which cites a number of incidents of bullying through the electronic media^{lxxiv}. Administering a questionnaire to examine experiences of bullying and cyber bullying among a sample of 177 students in Canada, Li finds relatively high levels of bullying overall, and of cyber bullying (although the sample itself is small):

- over half of the students (54%) have been victims of bullying and a quarter (25%) have experienced cyber bullying
- just under a third of the sample (31%) say they themselves have bullied others, and 14.5% say they have used electronic means to do so

- 52% of the sample said they know someone being bullied.

Li asked about the provenance of the cyber bullies. Of the victims, most (41%) do not know who is bullying them while 32% mention school friends (a further 11% mention the bullies as people outside their schools and 16% mention 'multiple sources'). Further, nearly one-half of bully victims are also bullies and 27% are cyber bully victims.

Social networking sites were not here highlighted as a means of electronic bullying, but the Anchor Watch Your Space survey specifically concerned bullying on social networking sites. It is unclear whether social networking increases the likelihood of bullying, and more likely adds to pre-existing means – 55% of bullies in Li (2005) said they use 'multiple sources' (NB small sample). Chat rooms are mentioned by over one third (36%) of this group, with email mentioned only by 9%. Of course, chat rooms – like social networking sites – can offer the element of anonymity, of not knowing who the cyber bully is, and this is a key problematic when possible intervention is being considered.

“The nature of the new technology makes it possible for cyber bullying to occur more secretly, to spread more rapidly, and to preserve more easily (such as cutting and paste messages)” (Li, 2005, p.1780)

Smith et al (2006) also conducted a small scale study in the UK among 92 students aged 11-16, administering a questionnaire covering aspects of cyber bullying^{lxxv}. While their study does not examine the issue from as many angles as does Li's, nor do they ask questions of would-be bullies, the trend in many of their findings is similar. That is, they found that:

- just over one in five students (22%) had experienced cyber bullying, with girls more likely to be bullied in this way than boys
- nearly one half of the sample (46%) say they know of cyber bullying taking place through the use of picture/video clips, 37% mention phone calls and 29% mention text messaging
- both the use of picture/video clips and phone calls are felt by respondents to be more impactful on the victim than traditional forms of bullying
- much of the bullying comes from a few individuals within the same class or year group. Unlike Li, Smith et al does not examine cyber bullying coming from anonymous sources.

The research evidence for cyber bullying then shows that it is a problem, but it is bullying itself that is a bigger problem. The National Bullying Survey (2006, UK, N=4772) reported that 69% pupils were bullied in past year (half of those were physically hurt), of whom only 7% said received unpleasant or bullying emails/IM/text messages.^{lxxvi}

Cyberbullying is distinctive in that it offers a degree of anonymity to the bully, but a degree of publicity to the victim that is distressing, it affords the use of visual images, as well as hurtful text and words, the bullying message can be quickly spread among a peer group, and the messages may be read in the victim's private and supposedly safe places (their bedroom, on their phone, at home). One of the concerns too, is that personal information contained in chat rooms or social networking sites can be passed on or manipulated by bullies.

Research on online harassment, defined as unwanted pursuit, is also growing in volume. The SAFT (Safety Awareness Facts and Tools) survey of 848 9-16 year olds in Ireland (2006)

found that 19% of chatters were harassed/bothered/upset/threatened online.^{lxxvii} The USA study by Wolak et al (2006) showed that some 9% of the sample of 10-17 year olds had been subjected to online harassment^{lxxviii}. Thirteen per cent of respondents said they had received unwanted sexual solicitations, and 4% had been asked for nude/sexually explicit photos of themselves (see also Mitchell et al, 2007^{lxxix}). However, *“close to half of the solicitations were relatively mild events that did not appear to be dangerous or frightening”*. While victims are not to blame for such events, it does appear that certain online behaviour (making rude comments, embarrassing others, meeting new people, and talking about sex online with strangers) increases the risk of online interpersonal victimization, suggesting a clear role for targeted safety guidance.^{lxxx}

Sexual content and pornography

The previous review of the literature on the evidence for potential harm and offence (Millwood Hargrave and Livingstone, 2006) considered sexual content and pornography in some detail. This update of the research literature shows that young people are still coming across a significant amount of unsolicited sexual material. Across Europe, 18% of parents/carers state that they believe their child has encountered harmful or illegal content on the internet (Eurobarometer, 2006)^{lxxxi} – the UK figure is 15%. Ofcom’s Media Literacy Audit (on children - 2006), found that 16% 8-15 yr olds have come across ‘nasty, worrying or frightening’ content online.^{lxxxii}

In the study of young people in the US by Wolak et al (2006), more than a third of the young people interviewed (34%) say they have seen sexual material they had not sought out – this is a significant increase from the previous study in 1999 when one quarter had said the same. Nearly one in ten of the sample (9%) said they had been distressed by the material they had seen.

A smaller but still significant study in the Netherlands of over 700 adolescents aged 13-18 found that 71% of males and 40% of females had been exposed to some sexually explicit material in the previous six months^{lxxxiii}. The researchers, Peter and Valkenburg (2006) suggest that for boys this correlates with their desire for sexual experiences through other media, among other attributes. With girls, the more sexual experience they have, the less such content is sought. The research also suggests that exposure to sexually explicit online content affects recreational attitudes towards sex (respect for women, regarding sex as unrelated to love or relationships, estimation of ‘normal’ sexual behaviours, etc), especially among male adolescents and if they think the perceived realism of the online communication is high.

Further studies also report relatively high levels of exposure to sexually explicit material. Flood (2007) found three quarters of a sample of 200 Australian teenagers reported accidentally having seen either pornographic or sexually explicit material on websites^{lxxxiv}. However Flood acknowledges that there may have been problems in defining and distinguishing between pornographic and sexually explicit content and so the findings of the study cannot be analysed further. The Irish Webwise survey (op. cit.) found that 35% of 9-16 year olds in 2006 had visited pornographic sites; 26% had visited hateful sites (mostly boys).

Such figures are now being echoed around Europe. For example, a survey of 300 Spanish youth (12-25) and their parents (2006) found that 37% seen pornographic websites, mostly accidentally.^{lxxxv} The ICTS National survey of 1561 teenagers (13-18) and 1080 of their parents in The Netherlands (2005-6) found that 46% have seen sexual images online, 39% violent images, and that girls are more bothered than boys.^{lxxxvi} In Poland, an online survey of 2559 12-17 year olds (2006) reported the highest figures found, suggesting that risks can be high in a country which has only recently acquired mass access to the internet, and also suggesting the incidence that may pertain in the absence of widespread safety guidance.^{lxxxvii}

- 71% of internet users found pornographic websites, mostly by accident
- 51% had encountered violent content, again mostly by accident
- 29% encountered xenophobic or racist content

In Sweden, Haggstrom-Nordin et al (2006) conducted an in-depth study of 18 participants, suggesting that respondents can differentiate between the sexualisation of such content and the intimacy of actual relationships.^{lxxxviii} On the other hand, Shim et al (2007, p.71) found that *“those who were high both in sexual and antisocial dispositions reported being more likely to expose themselves to unsolicited sexually explicit material than all others”*.^{lxxxix} They also review research findings (among the adult population) regarding harmful effects of exposure to violent pornography (desensitisation, callous attitudes towards women, compulsive/addictive sexual behaviour, etc) (see also Itzin, et al, 2007, which similarly concludes that those exposed to extreme pornography may be more at risk of developing pro-rape attitudes or even committing sexual offences).^{xc}

The EU-commissioned Eurobarometer focus group study (2007), which interviewed children aged 9-10 and 12-14 in 29 countries, found that children worried more about viruses, cons and fraud than about harmful content or contact. However, inadvertent encounters with violent or pornographic websites were described as disturbing by a proportion of the children, and the report notes some ambivalence (including curiosity as well as worry or shock) among the children interviewed.^{xcj}

Additional forms of harmful sites

Mishara and Weisstub (2007) review the legal and ethical difficulties of controlling sites that may be considered pro-suicide^{xcii}. They note that one of the key difficulties is the lack of absolute research evidence, although media reports proliferate:

These case reports do not meet the requirements for scientific proof that internet sites cause suicide, but they suggest that a relationship may exist. (Mishara and Weisstub, 2007, p.59)

This update found that the outcomes of research studies considering sites and forums that deal with suicide are often in conflict. Gilat and Shahr (2007), for example, compared support groups in Israel for potential suicide cases delivered through different electronic forms – telephone helplines, direct electronic communication, communication through a chat room with other similar people^{xciii}. Their analysis suggests that the third option (an asynchronous communication process) may be the most beneficial to potential suicides.

The group offers its participants an intense feeling of affiliation and an experience of emotional support from others. (Gilat and Shahr, 2007, p.16)

Their finding is supported by the results of an online survey conducted in Germany by Winkel et al (2005) which finds that the social support offered by internet forums is high^{xciv}. However, they do underline the fact that such support is higher in those fora where methods of suicide are not discussed.

McKenna and Bargh^{xcv} note that the internet can reinforce group membership among people who belong to concealable marginalized groups (potentially including suicide groups as well as anorexia groups etc). **The ease of online communication among those with unusual or niche interests seems likely increase the ‘support’ (both beneficial and harmful) available to such individuals.** So, while Alao et al (2006) review the influence of the internet on suicide and suggest that it can be a positive tool if used appropriately,^{xcvi} they also point to

the harms that may occur as the communication opportunities offered by the internet cannot differentiate between different levels of distress or need.

Little other evidence on the potential influences and effects of pro-suicide sites was not found. However, we note that Bardone-Cone and Cass (2007) examined the effects of viewing a pro-anorexia website^{xcvii}. First, they developed a pro-anorexia website, which 'well represented common themes'. A sample of 235 female undergraduates in the US was then randomly asked to view either that site or a site on home decor or a female fashion site. The researchers found that those viewing the pro-anorexia website displayed more negative attitudes towards themselves than did the two control groups.

From a very different starting point, Orgad (2006) examined the relationship that breast cancer sufferers in the US, UK and Israel have with internet-delivered fora that dealt with the illness (Orgad calls these '*storytelling sites*')^{xcviii}. While she too, found that sharing experiences could be empowering to patients as they told and shared their experiences, she also found that they were particularly lacking as a forum for a discussion of treatments or other objective considerations; for these, patients would have to go elsewhere.

Overall, the balance between the beneficial and harmful consequences of specialist online communities remains unclear. Leung (2007) finds in a study among 8-18 year olds in Hong Kong that the internet is often used for 'mood management' and social compensation during stressful periods^{xcix}. Support offered both offline and online remains important and can be aided by the opportunities offered by the internet.

Valkenburg and Peter (2007) hypothesised that their results would show that the internet was negatively associated with the well-being of adolescents aged 10-19 in the Netherlands^c. What they found, however, was that it is communication with strangers that has a negative relationship with well-being, while communication with friends, especially positive communication, has a beneficial effect on the well-being of adolescents (see also Valkenburg et al 2006^{ci}). They did not examine support groups in their study so those mechanisms of interaction are still unknown in relation to feelings of wellbeing. Thus Meads and Nouwen (2005) suggest that their review of emotional disclosure (not internet specific) is not conclusive in terms of its perceived benefits^{cii}.

Social networking sites and identity

The Joint Information Systems Committee in the UK commissioned the market research organisation, MORI, to conduct an online survey among 500 16-18 year olds who hope to go to university, and a small qualitative project^{ciii}. Among the research findings relating to the use of ICT as a learning tool, was the finding that:

- Only 5% of this sample claim never to use social networking websites; 65% use them regularly
- Three-fifths (62%) use wikis, blogs or online networks; 44% maintain their own blog or website
- Only a fifth (21%) are part of an online community such as Second Life
- The group thinks technology is very important to their social lives but not a substitute for face-to-face interaction.

A survey in the US conducted as part of the ongoing Pew Internet and American Life Project in late November 2006 (Lenhart and Madden, 2007) found that more than half of all teenagers in the USA who have access to the internet use social networking sites^{civ}. Of these most (66%)

say their site is restricted or 'private'. Frequency of use is high with nearly half of the sample (48%) saying they visit the site at least once a day. There is a clear gender bias with 70% of older girls (15-17 year olds) more likely to have used a social networking site and created online profiles, while just over half of the boys have done so (54% say they have used a social networking site while 57% of boys say they have created an online profile).

Teens & Friends on Social Networking Sites		
<i>What are the different ways you use social networking sites? Do you ever use those sites to...?</i>		
	Yes	No
Stay in touch with friends you see a lot	91%	9%
Stay in touch with friends you rarely see in person	82	18
Make plans with your friends	72	28
Make new friends	49	50
Flirt with someone	17	83

Source: Pew (2007), p.5

As we will see echoed in other surveys, the Pew Internet survey finds that most young people (91%) use social networking sites to stay in touch with their circle of friends; 82% say they stay in touch with their wider circle.

Hargittai (2007) suggests that the choice of social networking site used may increase both digital and social inequality^{cv}. Digital inequality is a consideration as those who do not have access to the Internet at a friend's or family members' home are far less likely to use such sites. Further, Hargittai finds that high and low social status users in the US cluster together around certain sites.

Hinduja and Patchin (2007) undertook a content analysis of publicly available, but randomised, MySpace profile pages (N=2423) produced by those under 18 years old^{cvi}. On average they found that teenage users of the profiles they surveyed have 65 friends. They also examined frequency of visiting the sites and found that about one-third of users had not logged on in the three months prior to the coding period. Over a third (38%) had logged on in the previous three days. The researchers question therefore the suggested high frequency of use of these sites as a staple for young people. In contrast with the Lenhart and Madden findings above, Hinduja and Patchin find that a smaller percentage of users, about 40%, restrict access to their site.

In the Anchor Watch Your Space survey in Ireland (op. cit.), 82.5% of the sample of 10-20 year olds say they have used social networking sites, and 36% are daily users. The difference in gender found is a difference in the length of time of each session in the site, with girls more likely to spend more time on the sites. Within the sample 15% say they have more than one profile. This survey found that 71% of the respondents have not set their profiles to private - this is a higher proportion the researchers say, than that found either in the UK or US. They suggest this is a technical issue related to the complexities of the architecture of Bebo, the most popular social networking site in Ireland.

A search of the literature (cited in Livingstone, 2007) shows certain trends in the way social networking sites are used^{cvi}:

- Most contact on social networking sites is with people known to the user, or with whom there is a shared interest
- There is some evidence that while social networking sites are displacing certain forms of electronic communication such as emails and chat rooms, other forms of communication are being developed (such as instant messaging) although direct contact is still preferred.

- The distinction between online and offline communications becomes less clear as technologies are increasingly incorporated into daily life.
- For young people such as teenagers, social networking sites allow them to take 'safe' risks or to use the risks as opportunities to test various adolescent behaviours.

Livingstone (2007) interviewed a small number of British teenagers (16 teenagers aged 13-16) in an ethnographic study, looking at their use of and behaviour within social networking sites.^{cviii} She found that the technologies did not in fact sustain the needs and desires of these teenagers. They had a sophisticated gradation of friendship and this could not be supported by the social networking sites they used, as these generally do not permit distinctions among levels of friendship or intimacy.

Mesch and Talmud (2007) in Israel found that relationships developed offline are stronger than those created online, again supporting the view that offline interactions are not seen by respondents as replacements for actual relationships and friendships^{ciix}. Other research also suggests that these technologies are used to enable social relationships – and the entire variety of devices available is used^{cx}. Participants in Dwyer's study (2007) in the US switched between devices and communication systems as they wished. Similarly, Ellison et al (2007) show that social networking sites in the US are used to develop social relationships and may be a positive force from those who otherwise have weak ties with people on the site they used (in this case the site studied was Facebook)^{cxii}.

As this report is concerned mainly with harm, this is not explored further here but it does underline the finding that users of social networking sites tend to communicate and interact predominantly with those within their social circle, although the radius of that circle is rather wider than it might be in an offline world. In short, social networking sites have a definite place in the lexicon of social interaction by providing insights into, for example, one's own identity through the actual presentation of self and through the way in which the network of relationships (of which such sites are one node) is developed:

Each profile gains its meaning from the network to which it is connected and these links provide the basis for trust (Livingstone, 2007)

Livingstone finds that teenagers present themselves in different ways, based on their ages. Younger participants present 'a highly decorated, stylistically elaborate identity' while older participants aim to create 'a notion of identity lived through authentic relationships with others' (Livingstone, 2007). The creation of these identities, she argues, contains an element of risk which public policy may try and manage.

Boyd and Heer (2006) also conducted ethnographic studies on the profile segment of the social networking sites, Friendster^{cxii}. They found that the presentation of one's self is determined and given structure by the identities of those with whom one is connected.

The previously mentioned issues of verifiability and anonymity are studied by Boyd (2004). She describes the growth of 'Fakester', a false set of 'friends' collected on Friendster sites, which grew out of frustrations with the site's technological difficulties^{cxiii}. As a result it is often unclear who is and is not 'real' on Friendster, Boyd argues, which can lead to confusion (at its mildest).

The value of social networking sites is clear, both as an entertainment tool but also as a way of creating and giving oneself identity. Importantly the identities and profiles presented are generally constrained by social expectations. However, teenagers will continue also to practice what Hope (2007) calls 'boundary performance' risk taking activities to push normative boundaries, something that is often publicly performed rather than secret, as part of the

process of identity construction.^{cxiv} Moreover, even when the potential misuse social rules or norms is quite well-understood, it is not always acted upon.

Social networking and privacy

Definitions of what it means to be private appear to be changed by social networking sites. Certainly teenagers in the Livingstone research (2007) keep much of their personal information and communication private and their interactions are determined by social mores. Yet they nonetheless share what might be thought of as 'intimate' information with many hundreds of people that they know very casually, if at all. Barnes (2006) in a discursive article also refers to the potential exploitation of young people's privacy which they may have given up, unwittingly^{cxv}:

"Currently social responses to privacy in social networks do not tend to deal with the potential misuse of personal information. Instead the response is based on the protection of children against predators, which is only one aspect of the privacy paradox. Similarly, a legal response has been the proposal of a bill to protect underage children. The government and industry responses tend to focus on the issue of predators and this focus distracts from the actual privacy issue — the social behavior of teenagers on the Internet and the use and misuse of their private information." (Barnes, 2006).^{cxvi}

A recent survey from Get Safe Online found that

"Over 10.8 million people across the UK are registered to a social networking site. Of these, one in four have posted confidential or personal information such as their phone number, address or email, on their online profile, making them vulnerable to identity fraud. The research also found that 13% of social networkers have posted information or photos of other people online without their consent. This trend is strongest amongst younger users, with 27% of 18-24 year-olds admitting that they have posted information, photos of other people without their consent online."^{cxvii}

A large scale online market opinion study (of nearly 2,500 adults) among potential employers and internet users in the UK conducted by YouGov (2007) found that:

- 15% of 18+ year olds say they have posted "personal information" on MySpace, 7% on Facebook, 3% on Flickr, 6% on YouTube , and 3% on Wikipedia
- There is a definite effect of age with a greater proportion of 18-24 year olds having posted such information - 45% of 18-24 year olds say they have posted personal information on MySpace, 44% on Facebook and 17% on YouTube
- 19% of respondents have posted holiday pictures online
- 19% have a profile on a social or business social networking website
- 11% "have written a personal online blog"
- 54% of 18-24 year olds say images of them had been posted online without their consent.

Just under one in five potential employers (18%) say they have found information about job candidates that had not been volunteered. (The study did not ask if employers always or often searched for information about potential employees as a matter of course.)

Hinduja and Patchin (2007), cited above, sought to examine empirically what information young people are posting about themselves and if this justified the concerns about the increase of sexual predation on these sites, or other forms of victimisation. The key finding was that a substantial minority of young people (almost 40%) set their profiles to 'private' so that visitors to their sites had to be invited in initially. However this leaves just under 60% that did not do so. Within this majority the researchers outline the content of the profiles:

- 81% listed their city
- 28% listed their city and school
- Under 9% included their full name
- 57% included a photograph of themselves
- 5% of these were seen in a swimsuit or underwear
- 18% admitted to use of alcohol
- 8% to using tobacco
- 2% to using marijuana

While Hinduja and Patchin accept that these overall percentages might be lower than anecdote would suggest, they do say that *"26% of the youth in the sample listed the school they attend and included a picture of themselves. This information alone could easily be used to contact the individual offline."* (Hinduja and Patchin, 2007, p.14). Alcohol, tobacco and marijuana use are just three of many possible behaviours mentioned online which might also be used to harm teenagers' reputations or career prospects in later life.

They also accept, as we have seen above, that it is difficult to verify the accuracy or veracity of the profile pages – and this of course remains a prime concern of those involved in the consideration of the protection of (particularly) minors from harm.

Inappropriate contact

Smith used the Pew Internet and American Life Project (as did Lenhart and Madden above) to look at the contacts made by subjects who create profiles on social networking sites (Smith, 2007)^{cxviii}. Smith found that seven per cent of this American sample said they had been contacted 'by a stranger who made them feel scared or uncomfortable'. Teenage girls (the sample was aged 12-17) are more likely than boys to say this (11% and 4% respectively). Further those who have posted photographs are far more likely to experience this (10% compared with 4% who had not posted photographs) although the absolute proportions are small.

The survey found that nearly a third of the sample have been contacted by a stranger; again girls are more likely to say this than boys (39% vs. 24% respectively). Smith does note that there appears to be no consistent association between stranger contact and the type of information posted (other than photographs) or between stranger contact and the public/private nature of the profile. It is also noted that teenagers who say they use social networking sites to flirt are more likely to be contacted by strangers – which is not surprising, perhaps.

Boyd (2006) found that teenagers in the US are aware of adults on their sites, but that they ignore them^{cxix}. Their attention is taken by those whom they 'know' and for whom they are

trying to look cool: *Having to simultaneously negotiate youth culture and adult surveillance is not desirable to most youth, but their response is typically to ignore the issue.* So these teenagers may post pictures of themselves scantily clad or drunk, but these are images designed for their peers, not for the adults who may happen upon them. These subjects in the research are not able to fast-forward to the possible regrets they may have about these images at a later date, as – Boyd suggests – adults might.

In a study looking at video blogging, Lange (2007) notes that women who share levels of intimacy through their video blogs feel they are connecting with other people and with other people's ideas^{cxx}. The video blogs allow communities to be formed and for experiences to be shared.

The research evidence shows that social networking sites are used widely and are used to support and maintain relationships, although not generally to create them. However a significant proportion of young people communicate with strangers online and post material about themselves which may be considered 'private' in most circumstances. The ability to restrict access to sites is known about but not always used.

We note, finally, that an authoritative position paper recently released by ENISA (European Network and Information Security Agency) outlines a series of commercial, corporate and social/individual 'threats' raised by social networking sites.^{cxxi} They describe the threats in technological terms and raise the issue of the difficulty of deleting entries, identity theft as well as cyberstalking and cyber bullying. Their recommendations to combat the effect of these potential threats include raising awareness and increasing the transparency of data handling practices so that users understand the way in which content is stored and may be used.

User-generated content

There is little currently in the research world on use of user-generated content sites such as YouTube, and much of the data are anecdotal. However such content is placed firmly within discussions of 'participatory culture' which surround the newer uses of the internet, including social networking but also online multiplayer gaming and other forms of interaction such as instant messaging. Some of the privacy risks for user-generated content sites resemble those of social networking, exacerbated by the facility to submit such content under a pseudonym.

Marwick (2006) looks at the structure of YouTube as a form of 'democracy', which she says refers to '*increased participation or increased access to previously unavailable channels of communication*' (Marwick, 2006, pp2)^{cxxii}. Like Keen, above, she questions this democratisation. While Keen questioned the ability to verify information in the blogosphere and goes on to discuss the intellectual property rights of professional content creators, Marwick argues that most major user-generated content sites – YouTube in particular - are essentially commercial, offering advertisers new ways of reaching their target groups. Her content analysis of articles about YouTube in websites belonging to newspaper organisations offers an insight into some of the issues that affect the more negative types of material, citing examples of racist and misogynistic content available. Here she argues that the self-rating system of choosing or rejecting material has no power because '*utopian rhetoric about internet democracies falls apart when communities of practice are populated with people for whom bigotry is an acceptable practice*' (Marwick, p.25).

This is clearly an area where further research is required.

Blogging

Viegas (2005) surveyed online weblog (blog) authors, asking about their attitudes towards privacy^{cxxiii}. (Viegas accepts this is a self-selecting sample and may not be typical of bloggers

as a population.) One of the key findings of this study is that while bloggers are increasingly creating their own guidelines about what is and is not acceptable, the fact that they have little or no control over their readership creates considerations of privacy. A number of respondents (36% of the sample) reported having found themselves in difficulty as information in their blog became known. Of the 24% of respondents who said they edited entries posted on their sites, most belonged to a blog system (LiveJournal) that has technological features to allow a degree of control over those that access the site.

The article is useful in defining the characteristics of blogging such as the fact that blogs are:

“archive-oriented. Instead of substituting new materials for old ones, as is normally done on regular web pages, the idea with blogs is to add postings frequently, creating an ever-growing compilation of entries.... The mounting compilation of postings serves as context for readers of blog sites.” (Viegas, 2005, p.3)

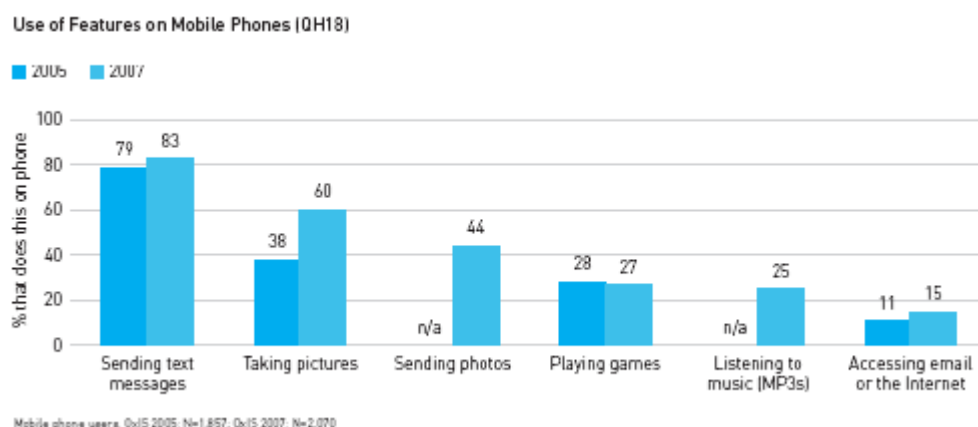
In his article on the psychology of sex, Noonan (2007) refers to the empowering nature of blogsites as information becomes available to many, rather than a select few^{cxxiv}. However, as with many online developments, more research is needed into the motivations and activities of young bloggers in relation to the potential for harm.

Internet content delivered by mobile

Research relating to mobile telephony overlaps with that on the internet, raising issues connected to the social possibilities offered by the technology (3G+). Clearly, mobile telephony is now becoming part of pre-teen armoury, engaging far younger age groups than noted previously. This is likely to permit greater freedoms from parental restrictions and supervision, and raises new problems of cyberbullying. However, there is little evidence to suggest that internet part of mobile telephony is being widely used (for reasons of cost as much as anything).

The Oxford Internet Survey 2007 noted that 88% of Britons used a mobile in 2007, in comparison with 75% in 2005, and almost all internet users have a mobile (97%)^{cxxv}. Over two-thirds of non users of the internet (69%) also have such a device. The survey found a significant increase in the percentage of mobile phone owners using the device to take photographs (60% in 2007 compared with 38% in 2005). Sending photographs was measured for the first time with 44% of the sample doing so. Text messaging remains the most common use of the mobile telephone (after voice calls, not noted) at 83% of this sample.

Figure 2: Use of Features on Mobile Phones (QH18), Oxis survey



Haddon (2007) undertook a review of the academic research for Vodafone^{cxxvi}. He noted that different studies lead to different conclusions about, for example, the prevalence of

cyberbullying by mobile telephone, although he does not dispute that such bullying is problematic. Indeed, he notes that *"in terms of perception there is some evidence about the specificities of cyberbullying., although the figures are not high."* (Haddon, 2007, p.16)

Further, Haddon notes that use of the cameraphone is generally positive and leads to positive social interaction. However he cites research that records some children's discomfort in having their photographs taken or sent. The report for the Anti-Bullying Alliance by Smith et al (2006), cited above, noted too that bullying using phone pictures and video clips had more impact on the victim and was seen as more traumatic than traditional forms of bullying.

What Haddon points out is that more research is required to be able to speak about the potential for harm from bullying via the mobile telephone, for example, in comparison with other forms of bullying: *'there is actually little systematic research to ... check if different types of cyberbullying are actually experienced as being more pernicious than physical bullying or direct verbal bullying'*. (Haddon, 2007, p.15)

The report from the European Union consultation on child safety and mobile phone services quotes extensively from the responses received^{cxxvii}. While not quoting the direct source, the report states that most child safety organisations mention the risks of grooming and sexual discussions through mobile and other Internet chat rooms and gaming, and provide examples of such cases:

"One child safety association mentions that "the private and personal nature of the device has meant that it has featured in most, if not all, of the grooming cases in the UK as the technology used in the 'last phase' of the grooming process". The same association states "there have been cases where the predator has sent the child credits for their phone (or indeed a handset itself) in order to maintain personal and secret communication." (EU 2007, p.5)

A number of other concerns, such as excessive use, or the downloading of pornographic material, are referred to but these have been covered in earlier parts of this report.

There is relatively little research from the US in this area as mobile telephony is not as widespread a phenomenon as it is in other parts of the world. In Australia the regulatory authorities have moved quickly in terms of providing information to parents and carers about cyberbullying, as well as other forms of 'e-crime'^{cxxviii cxxix}.

Electronic games

4.1 Summary and conclusions (incorporating and updating the previous review)

- Research in this field, as for television, is framed very differently depending on its disciplinary origins. Although research on electronic games is relatively new, it is strongly polarised between the psychological/ experimental approach that argues that electronic games have harmful effects, and the cultural/qualitative approach that defends games as engaging, pleasurable, and generally under the control of the player.
- **In the psychological/effects approach, a growing body of research is accumulating which suggests harmful effects, especially for games with violent content, especially on boys or men who play them. However, this research remains contested in terms of how far it can be applied to aggressive situations in everyday life.**
- **Since the 2006 review, further work has been conducted, pointing to evidence of harm especially in relation to aggression/violence, some evidence of addiction among a minority (approx. 7%), and noting gender differences in types of games played.** Gentile and Anderson (2006) say that the studies they have undertaken show that violent video game playing has an effect on children, regardless of whether or not these children displayed aggressive traits before the study^{cxxx}.
- Many researchers point to the specific nature of game playing – Anderson argues for the immersive nature of video game playing and makes the player play the part of the attacker (or victim); for others, game playing may be a social event (Weber et al) and so may teach real life skills. **It has been argued that since electronic games require a more involved and attentive style of engagement – a ‘first person’ rather than a ‘third person’ experience – this may make games more harmful.**
- Qualitative research (Cragg et al) among gamers suggests that the importance of storylines was not as important as it is, say, in television or film; rather, what is important is the progression through the game and the acquisition of skills - gamers said that electronic games are ‘distinctive’ and are more involving because of the active nature of the participation.

4.2 Recent research evidence (2005-2007)

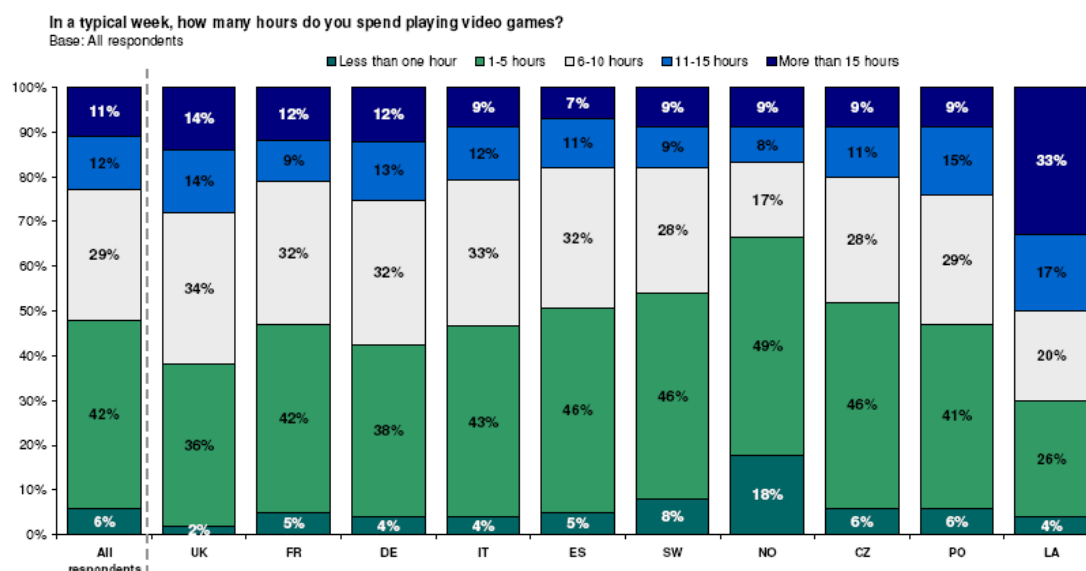
A study conducted in Europe in 2007 by the market research firm, Nielsen, showed PCs are the most used platform for playing electronic games (72%), followed by the PS2 (50%). UK respondents were leading in the adoption of the newer consoles and handhelds (particularly the PSP, Xbox 360, and Nintendo Wii)^{cxxxi cxxxi}. Boyle and Hibberd (2005) showed that the video-game market in the UK is the third largest market in the world (after Japan and the US)^{cxxxiii}. Indeed the Nielsen survey (2007) found that the UK was second only to Latvia in terms of heavy users of electronic games (28% of UK respondents said they played for 11+ hours compared with 50% of Latvian respondents).

The research data on the demographics of gamers in Europe also show that gamers span a wide age demographic with a bias towards males: 27% of those aged 16-24 in this survey were classified as heavy users (playing 10+ hours a week) in comparison with 20% of those

aged 25-64. 26% of males said they played 10+ hours per week ('heavy users') compared with 13% of females.

Figure 3: Total European Gamers - Breakdown by Country

Total European Gamers – Breakdown by Country:



Source: Nielsen www.isfe-eu.org

Data collected by Pew in 2002 showed that 81% of internet users aged 12-17 in the USA played games online in 2004 – a growth of 52% in such users since 2000^{cxxxiv}. While electronic games are an old medium (30+ years), they have translated online so online and mobile gaming, with the associated difficulties of 'supervision' and risks.

"The location where computer games are played remains important; one of the major changes in the last two decades has been the movement out of the arcades (where some level of policing was able to take place) and into the home (where the responsibility shifts to the parents to police the domestic environment). Related to this is the extent to which the emerging digital landscape now finds games being played across a range of more diffuse often mobile media platforms, from mobile phones, pocket computers and the internet." (Boyle. and Hibberd, 2005, p.11-12)

In their major review of media use by American children, Comstock, Scharrer and Comstock (2007) point to the limited research on video games^{cxxxv}:

"The inferential problem is that the quantity of consistent data is a small proportion of that for television and film. This is essentially an issue of reliability. We cannot have the same confidence that the results so far validly represent the possible universe of outcomes." (Comstock et al, 2007, p.235)

Nonetheless, they argue, the evidence thus far suggests that playing violent electronic games can lead to aggressive behaviour, especially among males aged 10-14. Indeed, it is widely asserted that electronic games are addictive and lead to social/behavioural and health problems; and that violence in electronic games leads to real life aggression, as is argued about TV violence.

In the UK, the market research firm, Cragg Ross Dawson, found gender differences among gamers, with girls and women playing games that are less 'action' oriented, while boys and men are more likely to play games with significant action (such as so-called shoot-em-up games) and sports games^{cxxxvi}. Similarly, Olson et al (2007) looked at video and computer game playing in the USA among adolescent boys and girls^{cxxxvii}. They found that, among 1254 7th and 8th grade children, almost half (49%) played at least one game rated as Mature (suitable for those aged 17 and over) regularly. Boys were far more likely to do so than girls (68% of boys and 29% of girls). They noted that playing such games (M-rated) correlated positively with being male, frequent game play, playing with strangers over the Internet, having a game system and computer in one's bedroom, and using games to manage anger.

Addiction and electronic games

Griffiths (2007) has written widely about addiction to electronic games as a phenomenon^{cxxxviii}. He asks questions about the nature of addiction and suggests six criteria that would suggest addiction (based on the DSM III), including:

- Salience (the importance of video game playing in one's life)
- Mood modification
- Tolerance (how much time is needed to achieve the mood modification referred to above)
- Withdrawal symptoms
- Conflict (e.g. interpersonal conflict created by excessive playing)
- Relapse (how quickly after, for example, a period of abstinence, former levels of game playing are resumed).

Griffiths suggests that such addiction does exist but it affects '*only a very small minority of players*'. In previous research that he conducted (Griffiths and Hunt, 1998), Griffiths refers to 7% of very heavy gamers in his sample (of 400 respondents in the UK aged 12-16) – that is, they played 30+ hours per week. Further, he and Hunt found that nearly 20% of gamers showed signs of dependence, against the factors above. Dependence was correlated too, with gender with males more likely to show such traits than females and with reported aggression as a result of direct game-playing. Thus he concludes that there does seem to be excessive game playing among some gamers and suggests that addicted players are clinically monitored.

In an earlier study with Wood et al, Griffiths had found that, among a sample of young people aged 10-17 in Canada, excessive video game playing may be linked with problem gambling behaviour^{cxxxix}. This link may be exacerbated, they argue, by online gambling which has many of the same elements as video game playing and makes gambling more accessible. Griffiths suggests therefore, that excessive game playing can be likened to online gambling although he is not suggesting that such gambling leads to excessive game playing.

Grusser et al (2007) asked over 7000 gamers about their gaming behaviour (note this was a self-selecting sample drawn from members of an online gaming magazine)^{cxl}. They found that nearly 12% of those that responded fulfilled the diagnostic criteria of gaming addiction (see above), and that monetary reward was not crucial. They also found weak evidence (based on self-completion online questionnaires) that aggressive behaviour and excessive gaming are connected.

Violence in electronic games

The arguments about the effect of playing violent electronic games on subsequent behaviour are as fraught with difficulty, as is the debate about the effects of viewing televisual violence. As with television, reviewed extensively in the review of harm and offence by Millwood Hargrave and Livingstone (2006), much of the argument centres on different research traditions and methodologies which suggest different outcomes. The more experimental approach, favoured by American psychologists, claims to show effects, usually short-term, as a result of viewing or – in this case – playing with violent content. The more cultural studies approach criticises the experimental tradition, and instead examines the positive dimensions of media use. This debate, then, is taken into the argument about the effects of violent video game playing. Research since 2005 is reviewed here.

Gentile and Stone (2005) undertook a literature review of the effects research around violent electronic games^{cxli}. They looked at a variety of US studies and concluded that the results were unclear but that researchers needed to look at four dimensions:

- amount of time spent
- content (i.e. violent content)
- form (an understanding of the conventions of the medium as in television, such as realism)
- mechanics (the types of devices required to play the games).

The same video game could have both positive and negative effects, depending on which of these dimensions is being investigated:

“For example, playing the Grand Theft Auto series of games (in which one plays a criminal sociopath) a lot each day could hamper school performance (amount effect), increase aggressive thoughts and behaviors (content effect), improve visual attention skills (form effect), and improve driving skills if one plays with a driver’s wheel and pedals or shooting skills if one plays using a gun input/output device (mechanics effects).” (Gentile and Stone, 2005, p.355-356)

Similarly Lee and Peng suggest that more research is needed what the game-playing experience is^{cxlii}. They draw parallels with other research in the US from the ‘television effects’ tradition which found that components of a programme (what they call ‘formal features’ such as loud noises, unusual camera effects, fast action) had an influence on how children reported they were feeling.

Weber et al (2006) suggest that a direct effect between players and violent electronic games should not be expected automatically – what may be important is the context in which the game is seen by the player^{cxliii}: there may be positive effects of playing games, in particular they point to the possible social nature of game-playing:

“It is more promising to expect possible effects to be moderated by the way users interpret the game; for example they may interpret it as ‘just a game’ and an opportunity to socialize with friends, or as a simulation of reality and a way to prepare for social life.” (Weber et al, 2006, p.357)

Durkin argues that playing violent electronic games may be cathartic and that video game playing itself should be seen as part of normal development in contemporary society^{cxliv}. Using

research conducted previously among video game players, Durkin points to the social aspects of video game playing, as do Weber et al above.

Williams (2006) seeks to apply cultivation theory to video game playing- that is, to examine how such activities can affect a view of the world^{cxlv}. He used experimental methodologies with a target group receiving a game to play while a control group did not. He suggests that *“participants in an online game changed their perceptions of real-world dangers. However, these dangers only corresponded to events and situations found in the game world, not other real-world crimes.”* (Williams, 2006, p.1) Thus there was no proof that video game playing affects how respondents perceive real-life situations. As the previous review on the evidence for harm and offence showed, this has been found in other studies where television or filmic violence has been reacted to differently from violence in the ‘real world’.

On the other hand, in their chapter in Gentile’s book (2003), Gentile and Anderson argue that game playing violence may have a greater effect on television violence because identification with the aggressor can lead to imitation of the aggressor in a more involving way than television would^{cxlvi}. They also argue that if video technologies can be used to learn, why might it be thought that they could not teach negative aspects such as violence and violent or aggressive behaviour. Similarly, repetition increases learning and the practice of an entire sequence is more effective than practising just a part of it.

In a review of the Scandinavian literature, Egenfeldt-Nielsen and Heide Smith (2004) look at the competing literature in this area which comes from two models of aggression, themselves drawn from different traditions^{cxlvii}.

- The first is the Active User perspective –as with television, this model is predominantly European and argues that reactions to media content is context –dependent. Therefore in answer to the question about the possible effects of violent games, this model suggests that this is too simplistic a question.
- The second (used more in the US where a general aggression model based on behavioural psychology is generally used) is the Active media perspective which argues that violent games do have effects.

Egenfeldt-Nielsen and Heide Smith themselves suggest that younger gamers may be susceptible to violent material but agree that there is little evidence for this.

While it has generally been agreed that there is little research evidence to show direct/causal links with real-life aggression and violent video game-playing, this evidence (as with television) is mainly based on short term arousal effects. It is unclear whether (as argued by Anderson and Dill, 2001^{cxlviii}) that electronic games allow the user to ‘practice’ their aggressive behaviours – or whether they then enact these.

Carnagey and Anderson (2005) conducted three experiments among participants in the US which they said showed that rewarding violent behaviours in a game increased aggression and hostile emotion while punishing such behaviour did not increase aggression behaviour, although it did increase hostile emotion^{cxlix}. All experiments used versions of *Carmageddon 2*, as follows:^{cl}

- Experiment 1: Used undergraduates (not children) and used physiological measures as well as subjective ratings of the game and completion of hostility questionnaires. Results showed that violence in a video game increased feelings of hostility.
- Experiment 2: Used (different) undergraduates and used physiological measures as well as subjective ratings of the game and, instead of hostility questionnaires, what are

called word fragment tasks that allow for completion in words with aggressive words. Results showed that when the violence was rewarded there was more aggressive 'thinking' or cognition than when violence punished or where no violence in game.

- Experiment 3: Used (different) undergraduates to compete to press a button faster than a opponent – the result of failure is for the loser to receive a burst of white noise, the duration and intensity of it being chosen by the winner. The participants then played one of the three versions of the game. Then completed variety of questionnaires when violence punished or where no violence in game. This showed that rewarding violent behaviour in violent electronic games has a negative effect and that prior exposure to such games is associated with self-reported aggression.

More recently, Anderson, Gentile and Buckley (2007) conducted three further experiments, also in the US, this time among both college students and 9-12 year olds^{cli}.

- Study 1: Levels of 'punishment' (noise) imposed upon an opponent were measured. The hypotheses were that those who played violent electronic games were more likely to inflict more severe punishment and that repeated exposure to violent media would be associated with higher levels of violent behaviour. The findings showed that those who played electronic games with violent content displayed more aggressive behaviour in the laboratory. Players considered games that were rated as T (Teen - content that may be suitable for ages 13 and older) as more violent than children's electronic games. It was also found that even 'mild' violence as in cartoons had a (short term) effect. The researchers argue that this shows that *'what seems to matter is whether the game includes aggressive content'*, not the realism itself.
- Study 2: Here the researchers investigated emotional hostility measures etc among high school students and set that against exposure to violent media content (including electronic games). They found that those who played more violent electronic games did have more pro-violent attitudes, whether or not they measured as having more aggressive personalities at the outset. They also found no apparent difference between boys and girls. They suggest that the relation between violent behaviour and aggression may be stronger for violent electronic games than the other media. While they recognise the difficulties of comparing data across media, they claim that video game violence exposure was *'more strongly and uniquely associated with violent behaviour and physical aggression'* than violence in television or film (cinema) content.
- Study 3: This tested school children to see how aggressive they were (and were perceived to be) and how they viewed the world. The study found that playing violent electronic games had a significant negative effect, and it is physical aggression that is more prominent as a result of violent video game-playing (compared with the finding that television and film violence lead to increases in verbal aggression).

In concluding the authors argue that playing violent electronic games can have an effect on social development:

"We have proposed that exposure to violent video games is likely to result in rehearsal and learning of aggressive scripts, aggressive beliefs, and aggressive expectation schemata... These changes in turn lead to increases in aggressive personality and behaviors and decreases in prosocial behavior... It appears that no matter how many risk and protective factors the child already has, playing violent video game still adds additional risk for future increased aggressive behavior." (Anderson et al 2007, p.140-141)

An experimental study by Arriaga, et al (2006) in Portugal, examining undergraduates' emotional reactions (measured on hostility, state anxiety and arousal), also showed that those

participants who played violent computer games reported significantly higher hostility, which was exacerbated by an already aggressive personality^{clii}.

We have already noted above that boys are found, in research, to play more action-oriented games than girls. Funk (2005) examined the literature that looks at the possible relationship between violent video game playing and desensitisation to violence – the research is suggestive rather than definitive. However she too, refers to the popularity of violent electronic games among both girls and boys – it is implied that this is a negative as the underlying assumption is that violent electronic games will have an effect on gamers^{cliii}.

The qualitative study undertaken for the BBFC in the UK in 2007 suggested that where violence is found in games there seem to be a number of reactions expressed by gamers^{cliv}:

- *“First, violence, in the sense of eliminating obstacles, is built into the structure of many games and it would be impossible to progress without it. ..Most gamers see eliminating enemies as another step in the game rather than something to savour for itself.*
- *“Second, violence contributes mightily to the tension in games not least because gamers are not just shooting, they are also vulnerable to being shot. Most gamers concentrate on their own survival rather than on the damage they inflict on others.*
- *“Third, the opportunity to be violent, without being vulnerable to consequences, clearly underscores the appeal of some games as escapist; the violence helps make the play exhilaratingly out of reach of ordinary life.*
- *“Fourth, gamers seem not to lose awareness that they are playing a game and do not mistake the game for real life”. (Cragg Ross Dawson, 2007, p.11-12)*

The study goes on to say that video gamers are ‘virtually unanimous’ in saying that they do not become desensitised to real-life violence, either to be violent or to care less about violence inflicted elsewhere. A criticism of such a study is that it is self-reported and has no longitudinal element to it so it is not possible to monitor whether or not an effect is noticed later on by these gamers.

Indeed, one of the criticisms of the research on electronic games made in Boyle and Hibberd is that there is little longitudinal research. Williams and Skoric (2005) conducted such a study online, lasting one month^{clv}.

- It was preceded by a participant observation study.
- It used an online role-playing game (the most popular genre), in which multi players interact.
- Such games are not widely played by younger people and the researchers chose *Asheron’s Call 2*^{clvi}, described as a significantly more violent game than average.
- The sample was made up of older people than has traditionally been examined – mean age of 27.7 years, and the researchers argue that the adult gamer is a neglected demographic.
- Had one group who received game (75) and a control group that did not (138)

Williams and Skoric found that game play is not a significant predictor of aggression, when compared with the control group across a variety of measures, and they argue that traditional theories for aggression and media content may not be applicable to the interactive nature of

game playing, although the element of physical isolation may be important (although there is no evidential support).

In their third study mentioned above, Anderson, Gentile and Buckley (2007) interviewed their subjects twice during the school year in the US. They noted that gamers who played more violent electronic games changed how they perceived the world in terms of aggression. This attitude, they suggest, is shown to correlate, in other research, with an increase in hostile reactions to situations. This study, the researchers suggest, shows that both formerly aggressive and non-aggressive children are made more aggressive after playing a violent video game. They also accept this is just one study and more will need to be undertaken to prove their theory.

In a study measuring brain activity, Bartholow, Bushman and Sestir (2006) found evidence to show that certain types of brain activity associated with violence desensitisation were reduced in those who played violent, rather than non-violent video games^{clvii}. Further, they say that this neurological response predicted increased aggressive behaviour in a subsequent task.

In a different view on the literature about the effects of violent electronic games on users, Ferguson conducted an analysis of possible publication bias in the types of material available for studies such as this update^{clviii}. Ferguson found that those studies (in the US, of an experimental nature) that provide aggression of various forms are more likely to be published. In contrast, research in other areas, such as that which demonstrates prosocial behaviour, were less likely to be susceptible to publication bias.

Parental mediation and media literacy

5.1 Summary and conclusions (incorporating and updating the previous review)

- Growing efforts are devoted to raising awareness among parents and children regarding the risks of media use, and there is evidence that both groups are generally aware of these risks. While evidence on specific practices remains sparse, especially in the UK, the academic work is generally of high quality. Among market research surveys on safety knowledge and practices, it is not always possible to obtain the full research report.
- Specifically, three main types of mediation activity are practised by many parents – restrictive (limiting, banning), active (discussing, guiding) and co-use (sharing the activity) – and these are, in one form or another, being extended from television to games and online technologies.
- Findings suggest that some parents implement rules for electronic games and the internet that resemble those long practised for television viewing, but others feel far less confident regarding managing their children's internet use and may do little to intervene or discuss their use.
- **For the internet especially, there is a considerable gap between parental and child perceptions of the risks encountered by the child (i.e. parents underestimate risks as reported by the child). There is an equivalent, though reverse gap regarding reports of parental mediation activities (i.e. parents overestimate mediation as reported by the child).**
- **In implementing parental mediation strategies, especially for new media, parents face a series of practical, domestic and technical difficulties.**
- Crucially, there is as yet little evidence that parental regulation, even though widely practiced, is effective in reducing the extent or nature of risk or, indeed, in affecting how children respond to risk when encountered. Specifically, where there is some evidence that parental mediation is effective, this tends to be associated with restrictive strategies (i.e. those which reduce use of the medium altogether) rather than the often-favoured active and co-use strategies. Overall, however, research has not found that parents who restrict or mediate their children's internet/game use more have children who encounter fewer risks/harms.
- Some argue that risk should be managed not eliminated, both because a risk-free society would be highly restrictive and because children and teenagers need to encounter some degree of risk in order to develop their ability to cope. Such arguments point to the potential value of increasing children's media literacy in order to mitigate against the risk of harm. A growing number of initiatives are underway, and evaluations tend to show that children's awareness of certain risks is increasing. It is not yet established, however, that this translates into a reduction in actual risk. Since it appears counter-intuitive to conclude that neither parental mediation nor children's media literacy has a positive role to play in the management of media-related risks, more research is greatly needed.

5.2 Recent research evidence (2005-2007)

Parental mediation

There is a long tradition of research on parental mediation of children's television use. Nathanson (1999; 2001) draws together the research literature by proposing three broad strategies of parental regulation, namely active, restrictive, and co-viewing mediation.^{clix} Valkenburg et al. (1999)^{clix} similarly group mediation strategies for television into the categories of active or instructive mediation, rule making or restrictive mediation, and parental modelling or co-viewing. These strategies may be stated in a more general form to apply to all media:

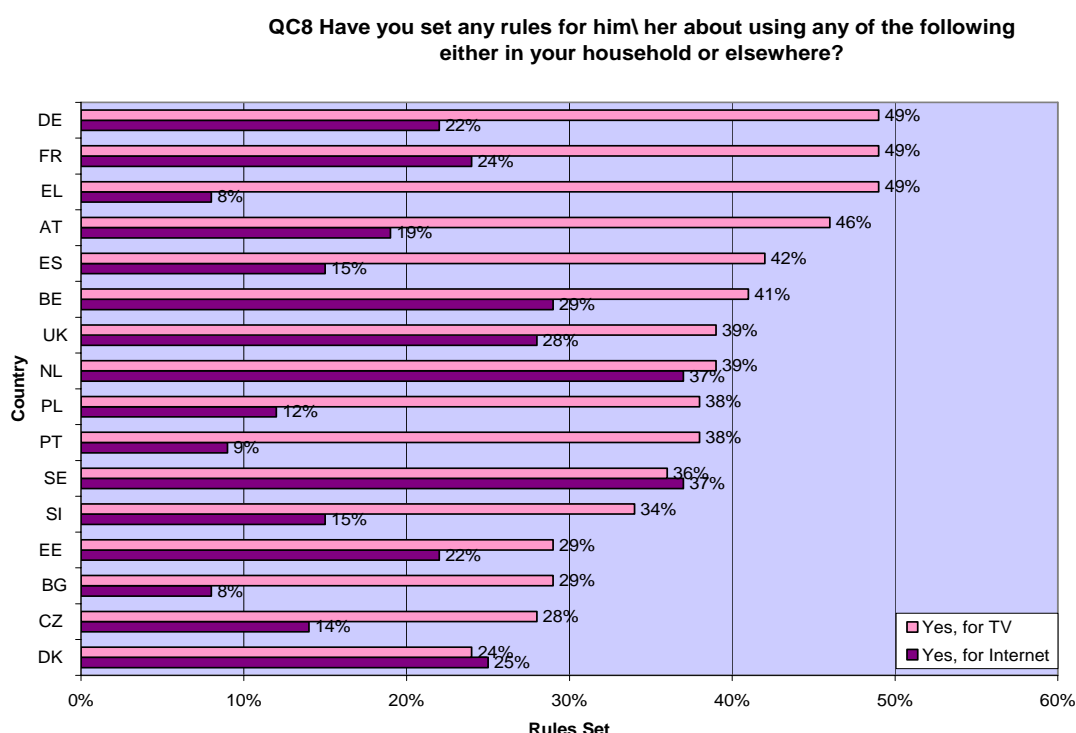
- *Active mediation* consists of talking about media content while the child is engaging with (watching, reading, listening to) the medium (hence, this includes both positive/instructional and negative/critical forms of mediation);
- *Restrictive mediation* involves setting rules that restrict use of the medium, including restrictions on time spent, location of use or content (e.g. restricting exposure to violent or sexual content), without necessarily discussing the meaning or effects of such content;
- *Co-using* signifies that the parent remains present while the child is engaged with the medium (as for co-viewing), thus sharing in the experience but without commenting on the content or its effects.

Borzekowski and Robinson (2007) review the literature on parental mediation of television and video viewing, also demonstrating the construct validity of three main scales in common use – instructive (sometimes termed evaluative or conversational), restrictive, and social co-viewing styles of parental mediation.^{clxi} This study did not find parental styles to be related to amount or location of domestic media, but it was shown that parents using instructive and/or restrictive styles had children who spent longer viewing videos (possibly this reflecting a parental control strategy). A restrictive parental style was associated with less television viewing, while the co-viewing style was associated with more viewing.

In relation to parental mediation of videogames, three similar types of strategies have been found – 'restrictive mediation', 'active mediation' and 'co-playing' (Nikken & Jansz, 2006).^{clxii} It is possible that parents are now extending these familiar strategies to the internet. Alternatively, it seems plausible that they may also develop new strategies, given the highly-publicized array of online risks, and the greater range of safety tools available (including filtering, monitoring, etc). Some strategies developed for television (and even videogames) may work less well for the internet. For example, it is difficult to make internet use a shared activity (because of screen size, sitting position, reliance on the mouse, and common location in a small or private room). Also, online activities are less easily monitored with a casual glance at the screen, given multitasking across multiple open windows. Most important, online risks to children are greater than are television-related risks (regarding the extremes of violent or pornographic content, privacy or contact risks from strangers, etc), giving rise in turn to greater anxieties among parents (Wolak, Mitchell, & Finkelhor, 2007; Peter & Valkenburg, 2006).^{clxiii}

In the graph below, the proportion of European parents/carers who have set rules for their child's television use is taken as an indication of parental willingness to regulate domestic media.^{clxiv} This is, in turn, likely to reflect cultural factors, possibly accounting for the considerable variation in these proportions - from fewer than 1 in 3 setting rules for their child's television use in Bulgaria, Estonia, Denmark and Czech Republic, to nearly half in Austria, France, Greece and Germany.

Figure 4



Most noticeable is the fact that the parental regulation of television in all cases exceeds that of the internet, suggesting a willingness on parents' behalf to manage their children's media use for a familiar medium such as television. In other words, there is a 'regulation gap' in parental approaches to these two media. This is particularly striking in Germany, France, Greece, Austria, Spain, Bulgaria, Slovenia, Portugal and Poland – mainly, but not all, countries for whom the internet is relatively new technology. In Bulgaria, for example, a survey of 21 secondary schools in 2003 identified a very low level of parental awareness regarding children's online risks: only 5% of parents thought the internet could be harmful for their children, and 1 in 4 claimed not to know what their child does online.^{clxv}

In the above graph, the gap is smallest in the Belgium, UK, Estonia and, especially, Sweden, The Netherlands and Denmark – Northern European countries in which the internet is now well-established. Since parents seem willing to regulate media with which they are familiar (both television and the internet), the low levels of internet regulation by parents in some countries is likely to be a matter of low parental awareness, competence or understanding regarding safety issues online.

Overall, the recent Eurobarometer survey (2005-6) found that 38% of parents or carers had set rules for their child regarding internet use, and the figure was highest (48%) for 10-13 year olds. Specific rules practiced across Europe, by the 38% who do implement rules, are shown below (specific findings for the UK are not available):

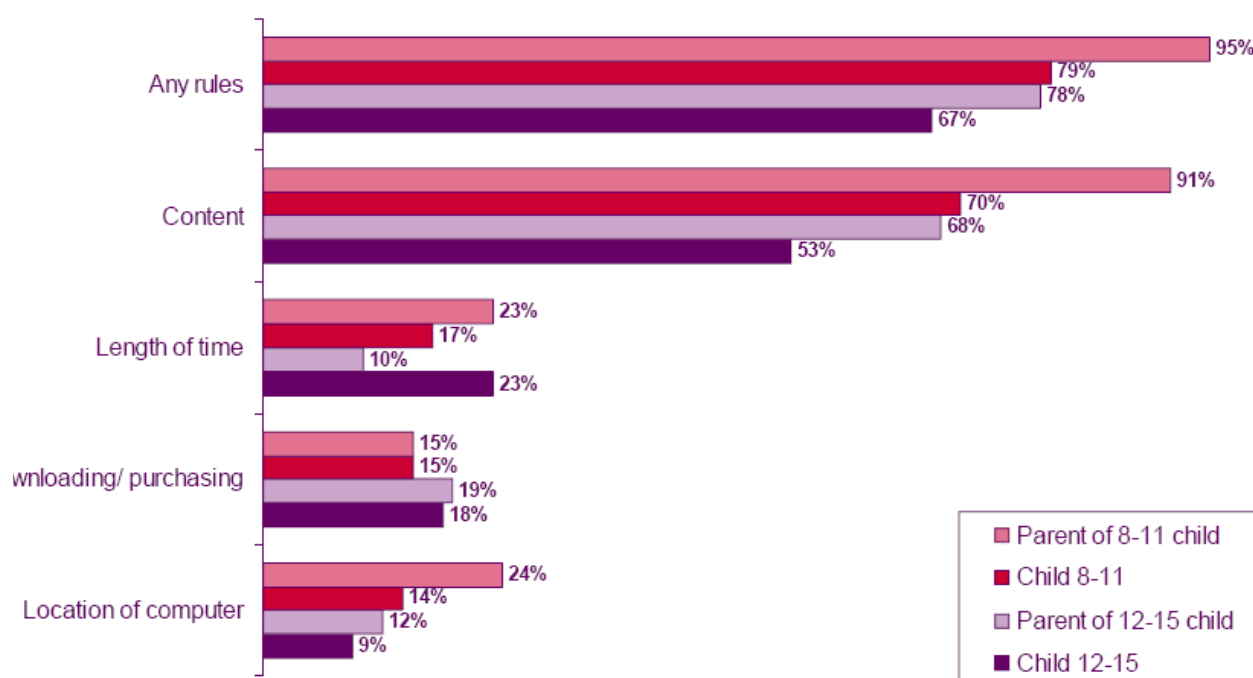
Figure 5

RULES APPLIED BY PARENTS (BY AGE OF THE CHILD)				
Rules:	Aged 6 or younger	Aged 6 to 9	Aged 10 to 13	Aged 14 to 17
Not allowed to give out any personal information	14%	43%	54%	36%
Not allowed to visit some websites	28%	48%	63%	51%
Must tell if uncomfortable about something on the Internet	9%	34%	40%	18%
Not allowed to use rude language in e-mails or chat-rooms	10%	27%	30%	18%
Not allowed to meet in person to someone only met on the Internet	10%	24%	45%	33%
Not allowed to copy documents\ pictures	5%	16%	10%	6%
Not allowed to go to chat-rooms\ to talk to strangers in chat-rooms	10%	34%	40%	23%
Not allowed to play games online	3%	17%	17%	11%
Not allowed to do online shopping	3%	33%	47%	38%
Not allowed to download music or films	1%	24%	24%	10%
Not allowed to download software	6%	28%	27%	16%
Rules regarding how much time child is allowed to spend on the Internet	42%	54%	55%	51%
Keeping phone lines free at certain times of the day	11%	8%	7%	3%
Ensuring that access to the Internet is shared fairly between family members	8%	22%	19%	18%
Other rules	46%	18%	16%	19%
Don't know	10%	5%	1%	2%
Most frequently mentioned				
Second most frequently mentioned				
Third most frequently mentioned				

However, the SAFT survey^{clxvi} reveals a sizeable gap between parental and children's accounts of online risk, suggesting that parents are unaware of the nature or extent of the risks of harm that their children encounter. It also reveals the converse gap, in which parents report a higher degree of regulation of their children than their children themselves recognise. Whether parents or children offer the more veridical account is a moot point, but the gap between them in perceptions of both risk and rules is notable.

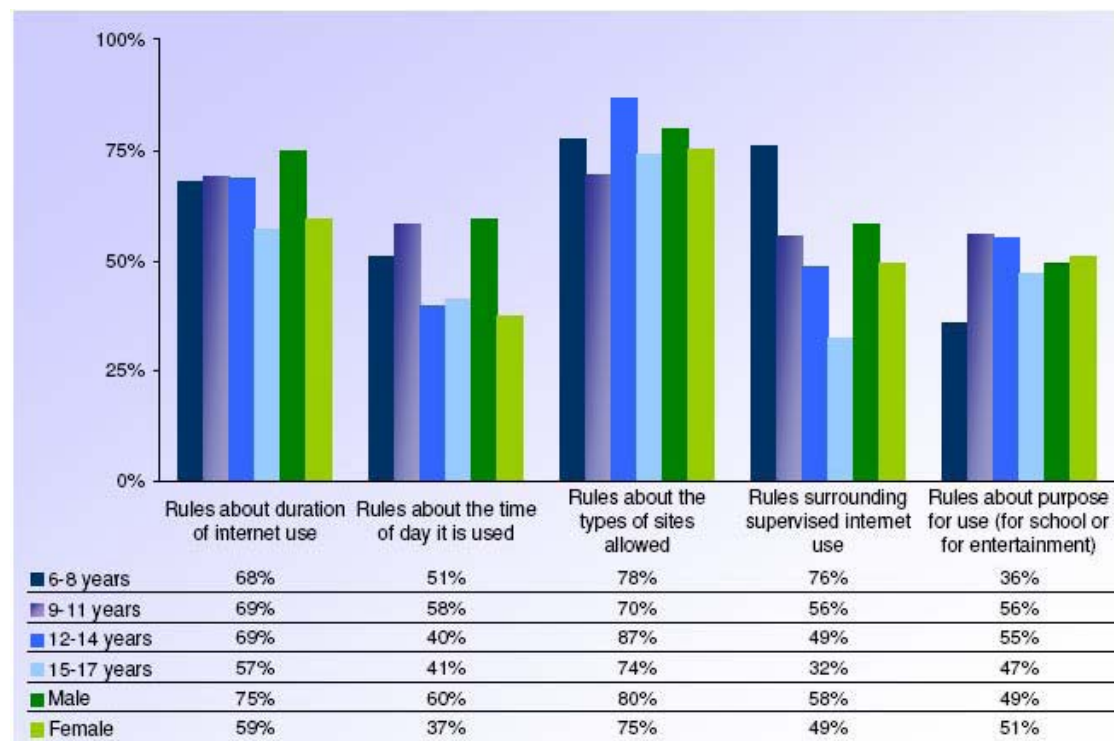
Ofcom's (2006) Media Literacy Audit for children (op cit) reports rather higher figures of parental mediation in the UK. For television, 85% of parents report rules (mainly concerning content, and time of day) for their 8-11 year old, dropping to 49% for 12-15 year olds. For the internet, rules are even more common, as shown below. In this figure, it is clear that even though children report somewhat less regulation than do their parents, the figures are still relatively high.

Figure 6: Rules about access to the internet as reported by parents and children



Also in Australia, Neilsen NetRatings found a recent increase in parents implementing rules regarding their children's internet use, as shown in the figure below.^{clxvii}

Figure 7



Nonetheless, there are still parents who do not implement rules, and little is known of the effectiveness of such mediation when practiced. Qualitative work points to difficulties faced by parents in implementing rules, and they are also restricted by their own levels of media, or

internet, literacy.^{clxviii} Vandewater et al (2005)^{clxix}, as other previous researchers, report the strong association between parental mediation and parental education. Regarding *“television use among very young children (ages 0 to 6), higher education level was related to rules regarding both amount of viewing time and specific content rules, whereas higher household income was related to having content (programme) rules.”*

Even for television, Jordan et al (2006) identify a series of practical reasons that impede parents' ability to reduce their child's exposure to television (and, by implication, other media), including *“parents' need to use television as a safe and affordable distraction, parents' own heavy television viewing patterns, the role that television plays in the family's day-to-day routine, and a belief that children should spend their weekend leisure time as they wish.”* (p.e1303). In relation to the internet, such practicalities may lie behind Rosen et al's (2006) observation that, *“Parents' high estimates of the dangers posed by online experiences were not matched by their low rates of setting limits and monitoring their teens.”*^{clxx}

Still, many studies show that parents want the tools for parental mediation, pointing to a widespread unmet need in terms of parental awareness and support. For example, in an online survey of 765 parents, Nikken et al (2007) found that parents are strongly in favour of content ratings regarding potentially harmful (violent, gory, pornographic, etc) electronic games; moreover, those parents concerned about the negative consequences of game play were also shown to use these ratings in guiding their parental mediation.^{clxxi}

Crucially, the current indications are that parental regulation, even though widely practiced, is not always effective. For example, Buijzen et al (2007) found, for a sample of 451 Dutch 8-12 year olds, that active parental mediation (discussing the news with their child) reduced children's fear, worry and anger among the younger children only. Restrictive mediation had no, or even the opposite effect.^{clxxii} In Nikken and Jansz's (2007) survey of 1115 Dutch families, to examine parental mediation of children's playing of restricted electronic games,^{clxxiii} they found that playing restricted games was predicted by certain characteristics of the child (younger children, boys, children inclined to violence and swearing, children who are enthusiastic about such games) and the parent (more play among those subject to more – not less - parental mediation, especially active discussion, social co-playing and verbal comments).

The somewhat surprising finding that more mediation is associated with more playing of restricted games led the researchers to conclude in favour of the forbidden fruit argument (as theorised by the notion of psychological reactance). Alternatively, it may also be that children who already play more provoke their parents to comment unfavourably on their play, hence resulting in the positive correlation between restrictions and banned behaviour. Most important, only straightforward restrictions on playing electronic games (rather than playing with the child or discussing the games played) were found to reduce amount of play in this study.

What of the internet? It has not been established that parents who restrict or mediate their children's internet use have children who encounter fewer risks. The 'UK Children Go Online' project, which specifically sought to identify effective strategies of parental mediation, could find none such (unless parental interventions substantially reduce the child's internet use altogether).^{clxxiv}

Livingstone and Helsper (in press) found that the expectation that increasing mediation would reduce risks was not supported.^{clxxv} As with the above findings for parental mediation and electronic games, it was found that parental restriction of online communication was associated with a significant reduction in the range of online risks encountered by 12-17 year olds. However, neither active co-use (going online with your child, talking about the internet, etc), though widely practiced, nor software-based strategies (filtering and monitoring) were

found to be effective in reducing risk. This challenges future research to identify the benefits, if any, of such practices. It may be a matter of parental internet literacy – the UK Children Go Online survey (2005) found that only 15% of parents said they were good at installing a filter. But it may also reflect the sometimes difficult relations between parents and teenagers: findings regarding the internet echo those for parental control and monitoring in relation to other areas of risk in adolescence (e.g. drug taking, alcohol use, etc; Kerr & Stattin, 2000).^{clxxvi}

However, Fleming et al's (2006) survey of 692 Australian 13- to 16-year-olds found significant differences in online safety practices such that younger teenagers (13- to 14-year-olds) and those whose parents had not discussed Internet safety with them were less safety conscious. By implication, those whose parents had discussed safety issues with them, as well as those who were older, were more safety conscious.^{clxxvii}

Moreover, Cho and Cheon (2005) found that parents' perceived control, obtained through shared Web activities and family cohesion, reduced children's exposure to negative Internet content.^{clxxviii} Further, Eastin et al (2006)^{clxxix} found that parenting style (categorised as authoritative, authoritarian, permissive and neglectful) has a significant effect on almost all mediation techniques studied, whereas increased access only influences time online. Additionally, technological blocking as a restrictive mediation technique was found to be highest among authoritative parents, followed by authoritarian and neglectful styles of parenting. While this shows an association between parenting style in general and parental strategies for mediating the internet in particular, there was no direct measurement of online risky behaviours in this study: hence it cannot be concluded that parenting style reduces online risk.

Although it is encouraging that research suggests restricting online interactions has some benefits, the costs in terms of reducing teenagers' freedom to interact with peers online, must be weighed against the advantages in developing safety guidance directed at parents and teenagers. As noted in Livingstone and Helsper,

“there is a strong positive association between opportunities and risks. This points to the dilemma that parents and regulators face. Increasing opportunities increases the risks. Online opportunities, and online safety, bear a cost. It seems that the key issue is not whether the parent has such a rule [privacy] but whether the child has understood this and accepted the importance of this rule”.

Cottrell et al's (2007) review of the literature on parental mediation of internet use summarises recent research findings as follows:^{clxxx}

- Child self-disclosure of risky activities is the main predictor of parental monitoring
- Parents who use filtering/blocking software are more knowledgeable about their child's online activities
- Open and supportive parent-child relations are associated with reduced online risk behaviour from teenagers, as is direct communication between parents and children about online risk behaviours

Using data collected in 2005, Cottrell et al used structural equation modelling to reveal that teenagers do recognise parental internet monitoring activities and that this recognition works 'to modestly reduce current disapproved internet use behaviour' (p.219). Further, parental monitoring knowledge (parents' knowledge of teenagers' risk behaviours) and parent-adolescent communication were also associated with a reduction in disapproved online behaviour. The authors concluded in favour of active parental strategies (put computer in open area, set time limits, install blocking software, check internet history) as well as open and

direct communication between parents and teenagers. This raises the broader question of parenting skills and family communication patterns. This important question has, separately, occasioned a considerable body of empirical research, though rarely does this include questions of parental regulation of children's media use.

Media literacy

Not only parents need guidance, but so too do young people. Overall, many young people are reasonably responsive to safety guidance, though nations vary. The Mediappro project concluded:^{clxxxI}

“There is also, importantly, wide evidence of self-regulation by young people. This includes awareness of violent and pornographic sites, sometimes in relation to concern about younger siblings, as in the Danish study; it may be that young people here replicate adult anxiety, adopting adult roles towards younger children. It also includes anxiety about chatrooms; and concern about viruses, spam, expense (buying ring tones, for instance), and hackers. However, awareness of risk and ability to deal with it varies considerably from country to country. In France, the young people were aware of a wide range of risks, and expressed sensible, cautious attitudes, which the French study attributed to extensive and successful public information campaigns and teacher training. Similarly, in Estonia, respondents were well aware of a wide variety of risks, from communicating with strangers to the dangers of Internet shopping. By contrast, Polish study found evidence that young people were sometimes too trusting of websites and in need of education to evaluate risk; while the Greek study found generally low awareness of risk.”

In the Bulgarian survey referred to above, 3 in 4 pupils were unaware of online risks (though nearly half had experienced online pornography, violence, contact with strangers and even offers of virtual sex. However, in Slovenia, where 77% of 12-19 year olds use the internet, teenagers are more worried by spam, viruses and advertisements than they are by other harms; nonetheless, 1 in 3 teens worry about the safety of online information,^{clxxxii} and 1 in 2 parents regulate their child's use of the internet.^{clxxxiii}

The EC defines media literacy thus:

“Media Literacy may be defined as the ability to access, analyse and evaluate the power of images, sounds and messages which we are now being confronted with on a daily basis and are an important part of our contemporary culture, as well as to communicate competently in media available on a personal basis. Media literacy relates to all media, including television and film, radio and recorded music, print media, the Internet and other new digital communication technologies.”^{clxxxiv}

Although it notes the positive benefits of media literacy for citizenship, freedom of expression and personal choice, the primary thrust of this approach suggests that media literacy should be used as a barrier, namely as a means by which individuals may protect themselves from the harmful or problematic aspects of the new media and information environment (e.g. to evaluate the many messages that confront today's media consumer, to be aware of media filtering and bias, to help them become judicious consumers and to be aware of issues regarding intellectual property rights).

Not all concerns with media literacy for protection concern the risk of inappropriate contact, and increasing interest focuses on their judgments regarding appropriate or inappropriate content. For example, Eastin, Yang and Nathanson (2006) examined how children (on average, 9 years old) in the US determined the credibility of online information. They found that most had trouble recalling online information when the text including advertising pop-ups

in addition to plain text, that children tended to believe sites that included advertising and lacked a clear source (compared with those that provided a source or that lacked advertising).^{clxxxv} Similarly, Ofcom's (2006) children's media literacy audit found that around 1 in 3 (31%) of 12-15 year olds make some kind of check when visiting a new website (e.g. checking the date or source, or comparing across sites).

In general, research on media literacy (and other awareness-raising activities) shows that:

- Levels of media literacy vary considerably across populations, with those 'ahead' tending to sustain their relative advantage over others as the media environment develops;
- Lower levels of media literacy are associated with other forms of social exclusion and relative deprivation, thus adding to already-existing forms of disadvantage;
- Critical media skills of interpretation and evaluation are not always implemented or practiced in real-life circumstances, reflecting a persistent knowledge/behaviour gap;
- Greater levels of media literacy are assumed, but have not been shown convincingly, to reduce media-related risk of harm;
- Initiatives to promote media literacy are generally more effective in reaching the information rich than the information poor.^{clxxxvi}

Measuring media literacy and, particularly, measuring change in media literacy against relevant benchmarks is largely lacking on anything other than a project-by-project basis. The UK's establishment of a media literacy audit – measuring such variables as access to, attitudes towards, trust in and complaints or concerns about each of several media – is one way forward (see Ofcom, 2006).^{clxxxvii}

However, notwithstanding the growing number of initiatives underway to increase children's media literacy, resulting in increases in children's awareness of certain risks, it is not yet established that this translates into a reduction in actual harm. Indeed, more generally the commonplace assumption that as children become more media literate they become less readily influenced by media content, and thus at less risk of harm, is not (yet) supported by evidence (Livingstone and Helsper, 2006).^{clxxxviii}

There remains in most countries a considerable gap between the ambitions of those promoting media literacy and the delivery of an effective media literacy curriculum.^{clxxxix} Media literacy principles are often articulated but less often translated into teaching resources. Moreover, they tend to be evaluated in their own terms (e.g. as teaching resources) more than they are assessed for their effectiveness in ameliorating the risk of harm. Other routes to media literacy (e.g. media campaigns, parenting guidance, online resources), like many awareness raising campaigns, tend to reach the already-informed more than they do those who really need to know. Increasing resources, evaluating media literacy programmes, and equalising competences so that all children may benefit remains a challenge for the future. As with the question of parental mediation, the importance of enhancing children's media literacy is widely supported and so merits further empirical investigation.

Updating the conclusions from Harm and Offence in Media Content (2005)

This section repeats and updates the main conclusions of the earlier review.

As noted before, regarding aggressive content,

- *“There is a sizeable body of evidence that televised portrayals of aggression (typically, American action-adventure dramas intended for an older audience) may negatively influence the attitudes and behaviours of children, especially boys. Similar findings exist as regards aggressive content in film, video/DVD and electronic games, though the body of research evidence is somewhat smaller. These media are, at present, all highly regulated through labelling and age-restrictions.*
- *It seems likely that the risk of harm will be greater when children view content inappropriate for their age (i.e. intended for those older than them), though unfortunately research does not always adequately link the effects of exposure to the specific nature or age-appropriateness of the content.*
- *However, we suggest that at stake is the likelihood of risk rather than of inevitable harm, for, as the research also shows, not all in the audience are affected equally and many, it appears, are not affected. Broadcasters, regulators and parents must continue to make balanced judgements of the likely risk to some children, bearing in mind the conditions of access (e.g. scheduling, intended audience, narrative context) and conditions of mediation (e.g. role of parental discussion of content or restrictions on access).”*
- The updated review has considered further evidence regarding violence/aggression in television and electronic games. This confirms and slightly strengthens the evidence regarding the risk of harm associated with playing electronic games, though the question of generalisation to everyday life remains.

Regarding the risk of harm from online communication, the previous review concluded that,

- *“although there is mounting evidence that internet-based and mobile communication technologies are being incorporated into practices of bullying, harassment and other forms of malicious peer-to-peer communication, it is not yet clear that these technologies are responsible for an increase in the incidence of such practices. This is partly because of a lack of sound data from, say, 10 years ago, against which to compare present findings.*
- *However, research on the conditions of access points to a relative convenience and ease of use which, combined with highly personalised, private and often anonymous conditions under which these technologies are used, suggests that cyber-bullying, cyber-harassment, etc may introduce new kinds of problems for users, as well as exacerbating old ones. In some ways, it seems, online and offline communication work differently; but in key ways also, they work together, with, for example, offline bullying or harassment continuing or extending offline, rather than remaining entirely distinct.*
- ***Given the difficulties faced by parents in understanding how to manage the conditions of access to these forms of content and contact, the implications for***

regulation may be judged differently, in terms of balancing the responsibility across the industry, regulators, parents and children for controlling access and exposure.”

- The updated review has considered further evidence regarding online communication – both mass produced and user-generated. The evidence for online risk, especially in relation to inappropriate or hostile/exploitative contact, is growing as the use of online communication – particularly on social networking sites – increases among teenagers.

We also noted before that,

- *“For some putative harms, the evidence is generally lacking. For example, despite widespread public concern over the exposure of children to adult or pornographic images, there remains little evidence that such exposure has harmful effects, with the notable exception of material that combines sexual and violent content. This lack of evidence partly reflects the methodological limitations of the evidence (one cannot ethically expose children to certain images, there is no agreed definition of pornography, it is difficult to measure long-term psychological disturbance, etc).*
- *But it may also suggest that, at least in our present largely regulated content environment, the images available to children are not harmful, though they may be offensive or even briefly disturbing. If less regulated contents become more accessible to children (e.g. through the internet), researchers will need to find a way to overcome these methodological difficulties, particularly given the apparent growth in material that does combine sexual and violent content.”*
- The updated review has considered further evidence regarding sexually explicit and pornographic content across media. We have found little further evidence to add to this picture.

Last, we noted that,

- *“For yet other putative harms, the cultural context is crucial. Researchers have long pointed to the media’s role in relation to reality-defining effects, arguing that the media provide the frameworks or expectations with which the public understands the world around them. This has been, in various ways, considered harmful – potentially reinforcing stereotypes of marginalised groups, providing a biased account of current affairs, exacerbating a fear of crime, promoting a commercialised culture of childhood, encouraging the early sexualisation of girls, and so forth.*
- *However, the evidence is patchy and, by and large, neither recent nor UK-based. The difficulty here is that, as noted above, any effect of the media operates only in combination with many other social influences, and the effect is to be measured not in terms of an immediate impact on an individual but rather in terms of gradual shifts in social norms over years or decades. While few would suggest that the media play no role in socialisation or cultural influence, it remains difficult to obtain convincing evidence that the media play a primary causal role.”*
- The updated review has not identified much further evidence regarding the reality-defining effects of media content, although concerns regarding the sexualisation of young girls continues, with some new evidence pertinent here.

The evidence presented here, within this update of research from 2005-2007, provides some new data and adds to the body of research already examined previously (Millwood Hargrave and Livingstone, 2006). When considering the potential for harm by different media platforms,

it is vital to remember that the size of effects is not known and the contribution of any one medium within an individual's overall array of influences is only partially understood. The authors argue for a risk-based approach that is proportionate, recognising the potential for harm from different media but also allowing for the benefits of each medium to be enjoyed.

6.1 Television

- Research findings show the continuing importance of television, especially for children.
- Regarding risk of harm, research continues to concentrate on the possible influence of violent content, the sexualisation of young people and the building or reinforcing of stereotypes.
- The findings (mostly drawn from the US and belonging to a largely experimental tradition, with the concomitant criticism of samples, methods, etc) continues to show that there may a short-term impact on attitudes from watching violent content; it is not clear whether and for whom this may translate into aggressive behaviour in everyday life.
- The lack of longitudinal tracking data makes it difficult to determine whether there are longer-term changes to attitudes or behaviour that result from watching violent content.
- The evidence continues to suggest that television can negatively affect attitudes in several areas (through the maintenance of stereotypes, for example).
- It is important that contextual and mediating factors are taken into account when considering the impact of television, including its influence on the young.

6.2 Internet

- The authors found substantially more new research in this area, particularly research examining the ways in which social networking sites are being used.
- While the positive social benefits of these sites are noted, these were not the subject of this review. The present focus was instead on the evidence for the potential for harm that these sites create – primarily by facilitating the easy uploading and accessing of inappropriate content, sharing and disseminating personal information, and extending the possibilities for inappropriate contacts.
- Much of the research shows that young people using these sites are aware of the risk of harm, and are generally aware of both the technical measures and codes of behaviour that they should adopt. It also suggests that they often ignore these or, for various reasons, open themselves up to inappropriate or risky experiences.
- Little research has yet been undertaken on the potential for harm from user-generated content, though evidence of cyberbullying is increasing and, some suggest, is distressing because it is experienced in a private or personal setting.
- This report includes mobile telephony within the review of research on the internet (as little research relates specifically to the mobile handset). Evidence of risk of harm relating to mobile phones is, thus far, more linked to inappropriate content than to other possible risks (e.g. misuses of GIS tracking, or inappropriate contacts).
- The anonymity offered by the internet in terms of harm (and the perception of anonymity) is an area that warrants significant further study.

6.3 Electronic Games

- The research in this area is quite plentiful and recent. Possible outcomes, including harmful ones, depend on the type of game and the context in which it is played.
- The research findings suggest that there are harmful short-term effects associated with playing games with violent content. There is some evidence to suggest the effects may be as much associated with games containing unrealistic or cartoon violence as they are with those employing realistic and sophisticated computer graphics.
- As it is mainly boys and men who play violent electronic games, they are likely to be more affected (though some research suggests that, among those who play, there are no gender differences in effects).
- There is also growing evidence about excessive game playing, which some researchers suggest shows addictive behaviour among a minority of players.

6.4 Parental mediation and media literacy

- The evidence suggests that both parents and children are increasingly aware of the risks associated with media use.
- Many parents have long employed various strategies for mediating their children's television use, notably those that restrict the child's viewing (by restricting time spent or content viewed), that promote parental values and media literacy by discussing viewing with the child, and by simply sharing the viewing experience with the child. These and other strategies have been extended to electronic games and, more recently, to children's use of the internet.
- However, research points to a range of difficulties parents encounter, especially in managing their children's internet use and, in consequence, some may do little to intervene in their child's online activities. Particularly, parents underestimate risks as reported by the child; further, parents overestimate mediation as reported by the child.
- Notably, there is not yet much evidence that parental regulation effectively reduces the extent or nature of media-related risks, unless parents take a generally restrictive approach to their child's access to the medium altogether.
- Similarly, although research is growing on children's media literacy, as are the number of initiatives designed to increase this literacy, it is not yet established that increased media literacy either reduces children's exposure to risk or increases their ability to cope with risk. Hence more research is needed.

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