The Media Literacy of Children and Young People

A review of the research literature on behalf of Ofcom

By

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Preface

Ofcom is the independent regulator for the UK communications industry.

As part of Ofcom's work to promote media literacy we plan to undertake or support a range of research activities to monitor people's skills, knowledge and understanding of communications technologies and the content they watch and listen to either through broadcasting or online.

Ofcom defines media literacy as the ability to access, understand and create communications in a variety of contexts. We have published our strategy and priorities for the promotion of media literacy and these can be found on our website.

In October 2004 we commissioned Professor David Buckingham and Professor Sonia Livingstone to report on recent relevant academic and other publicly-available research into children's and adults' media literacy respectively. The purpose of this work was to outline the range of studies conducted, the gaps in research, provide examples of innovative methodologies, and outline possible barriers and enablers to media literacy identified by these studies.

These reviews have admirably fulfilled their task, and provide a stimulating point of departure for informing and refining research strategies and methodologies. Some of the recommendations can be taken forward by Ofcom; others may be more relevant to other stakeholders including content producers, broadcasters, platform and network providers, educators, government departments, parents, children's charities and other organisations. The assumptions, conclusions and recommendations expressed in this review are those of the authors and should not be attributed to Ofcom.

This review is published together with *Adult media literacy: A review of the research literature*, by Professor Sonia Livingstone. Further copies of both reviews are available from our website at www.ofcom.org.uk.

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Section 1

Executive summary

1. This document provides a comprehensive review of the academic literature relating to children's and young people's media literacy. It focuses primarily on television, radio, the internet and mobile telephony; and specifically addresses the various barriers to, and enablers of, media literacy.

2. Children develop media literacy even in the absence of explicit attempts to encourage and promote it. Accordingly, the document begins by exploring the development of the three dimensions contained in Ofcom's definition of media literacy: 'the ability to **access**, **understand** and **create** communications in a variety of contexts'.

3. In terms of **access**, the literature suggests that children and young people already possess quite high levels of *functional* literacy - that is, the skills and competencies needed to gain access to media content, using the available technologies and associated software. Older children are generally aware of regulatory mechanisms and systems of guidance, and take these into account in seeking to make their own decisions. The large majority of young people show some awareness of risks relating to sexual dangers on the internet; although they are less aware of potential economic risks. Several studies in this area conclude that education in media literacy may be a more effective strategy than blocking or filtering.

4. In terms of **understanding**, there is an extensive literature relating to the development of children's understanding of television. This literature suggests that children's awareness of areas such as television 'language', the difference between representation and reality, and the persuasive role of advertising, develops both as a function of their increasing knowledge of the world, and as a result of their broader cognitive and social development. Children also learn to cope with potentially unwanted or upsetting emotional responses, and to make critical judgments about areas such as television violence, by employing forms of media literacy. It is important to emphasise that these areas apply just as much to fictional material as to factual material; and that critical understanding goes hand-in-hand with the development of aesthetic and emotional responses to media of all kinds. There is considerably less research about how children interpret, evaluate and respond to other media, including the various forms of content found on the internet.

5. By contrast, when it comes to **creativity**, there has been less academic research relating to 'older' media such as video and analogue radio than to new media, particularly the internet. Research here suggests that there is considerable potential for media to be used as means of communication and self-expression, not least by socially disadvantaged groups; that creative involvement in media production (particularly in the context of education) can make an important contribution to the development of critical understanding; and that new media such as online gaming and mobile telephony provide possibilities for new forms of interaction.

6. Among the **barriers** to media literacy are several inter-related factors, of which social class and economic status are the most well-established. These barriers limit children's access to the internet, although not to established media such as radio or television.

Less is known about other potential barriers such as disability and ethnicity, or about the role of individual dispositions or motivations. It is important to recognise that such barriers may affect the *quality* of access as well as the quantity – for example, in terms of the available functionality of the technology, the location and level of support for use. There is evidence that access to the internet in schools remains often very limited. It should also be acknowledged that different social groups may have different orientations towards particular media – or different forms of 'cultural capital' – that may influence the nature and quality of access.

7. Potential **enablers** of media literacy include parents, teachers (both in schools and in informal educational settings) and other agencies such as broadcasters and regulators. Research suggests that parental mediation can play an important role in developing younger children's media literacy, for example in understanding the relationships between representation and reality. However, the role of parents depends upon broader beliefs about child-rearing, and many parents do not play as great a role as they like to suggest. Meanwhile, education about the media has a long history, at least in secondary schools in the UK, although it remains a marginal aspect of the compulsory curriculum and is rarely found in primary schools. There is a growing body of evidence about the effectiveness of particular teaching strategies, both in respect of the 'understanding' and 'creativity' aspects, although there has been little sustained or systematic research into the learning potential of children at different ages. Media education is also developing in the informal sector, although there has been little sustained evaluation of such work.

8. The review provides an indication of several important **gaps in the literature**. These include specific media (such as radio, mobile phones and online gaming) and particular population groups (such as younger children, those with disabilities, and ethnic minority groups). There is a particular need for research about children's ability to evaluate internet content; about their awareness of new commercial strategies in the media; about media production in the home; and about learning progression in media education. Of the three areas in Ofcom's definition, 'creativity' is by far the least well-researched. New technologies and media forms will also pose new challenges and demands in terms of media literacy, so it is important that research in this field is regularly updated. There is a case here for more sharing of research findings and methodologies between academic and industry researchers.

9. In terms of **methodology**, the review finds that a great deal of research in the field is based on self-reporting, and recommends that there should be more observational studies that explore how media literacy is used in everyday life. In relation to education, there is a need to develop new approaches to assessing the effectiveness of media education in influencing media use outside the classroom. Researchers also need to address some of the ethical difficulties, particularly in respect of research on new media.

10. Finally, the review reminds us that media literacy is multi-dimensional. The nature and extent of the media literacy that individuals need and develop depends very much on the purposes for which they use the media in the first place. Different social groups may also develop and require different forms of media literacy in line with their motivations and preferences in media use. As such, we need to beware of adopting a reductive or mechanistic approach to assessing levels of media literacy among the population at large.

Section 2

Introduction

The notion of 'media literacy' has been in common use for at least a quarter of a century, although there is still some confusion and disagreement about how it is to be defined. The analogy with print literacy, while productive in some respects, also begs several fundamental questions. To what extent can media be seen to embody a form of language that is similar to written language? To what extent, and in what ways, do users need to *learn* to use and interpret media, as they must learn to interpret print? And is there a single literacy that applies across the whole range of contemporary media? These and related issues have provoked considerable theoretical debate (see Buckingham, 1993a: Chapter 2; Kress, 2003; Messaris, 1994).

By contrast, the aim of this review is more pragmatic. It provides an overview of recent academic research in the field, with a view to informing Ofcom's remit to 'promote media literacy', as laid down in the Communications Act 2003. In doing so, it follows the three-part definition of media literacy proposed by Ofcom, following its public consultation during summer 2004: media literacy is 'the ability to access, understand and create communications in a variety of contexts'. In line with Ofcom's role, the review focuses on broadcast media and telecommunications, primarily in the form of television and radio (which we refer to collectively as 'old' media), the internet and mobile telephony ('new' media) – although of course the advent of digital TV and radio is blurring this distinction. And, in line with our brief, we focus specifically on the various barriers to, and enablers of, media literacy.

There is a vast body of research on young people and the media, dating back to early studies of the cinema conducted in the 1930s. Much of this work has been preoccupied with the issue of media effects – particularly harmful effects – and very little of it is directly concerned with 'media literacy' as such. However, a great deal of this work is potentially relevant to our theme, since it all rests on more or less explicitly stated assumptions about young people's abilities to use and interpret media. As a result, this review occasionally skates over some large areas of research and debate, offering examples and case studies; although it also seeks to identify some significant gaps in our knowledge, particularly in relation to how media literacy might be more effectively 'promoted'.

Section 3 of the review considers the dimensions of media literacy and looks at the research detailing how children's media literacy develops, breaking down the three broad areas (access, understand, create) into some more specific sub-categories. It also identifies some of the problems and questions that are entailed in the attempt to measure or assess media literacy. Section 4 looks at potential barriers to media literacy, relating both to access and to people's motivations and orientations towards media use; and at potential enablers, focusing on the role of parents, educators and other agencies. The review concludes (Section 5) with a summary of some of the most significant gaps in our current knowledge, and of issues relating to research methodology.

Section 3

Dimensions of media literacy

Children develop media literacy even in the absence of explicit attempts to encourage and promote it. Indeed, many researchers and media producers would argue that children today are more media literate than the children of previous generations, and indeed significantly more media literate than their own parents. There is often a degree of sentimentality about such claims, and they may need to be qualified in some respects. Nevertheless, children are bound to develop a degree of competence in handling the media as a result of three factors: their overall level of cognitive, emotional and social development; their experience of the world in general; and their specific experience of the media. Research in this field has yet to adequately distinguish between the respective contributions of these three elements. However, attempting to identify what children *already* know about the media would seem to be a prerequisite for any attempt to promote media literacy. Accordingly, this section of the review provides an overview of research on the development of children's abilities in each of the three areas proposed by Ofcom: access, understand and create.

These areas might be seen to correspond to a distinction between *functional*, *critical* and *active* literacy (see, e.g., Barton 1994). 'Access' refers to the ability to locate media content that is appropriate to one's needs (and to avoid content that is not). It involves the manipulation of hardware and software, and the gathering and application of information about what is available. 'Understand' refers to what users do when they have located content. In this area, we are applying the framework of 'key concepts' that has been used in evaluating critical understanding in media education for many years. 'Create' extends the notion of literacy from 'reading' to 'writing' in media, although it also entails abilities both to access technology and to understand media forms and conventions.

1.1 Access

Access has two dimensions. It is, firstly, about *physical access* to equipment, in a setting where it is possible to use it in an unrestricted way. However, it is also a matter of the ability to *manipulate* technology (and related software tools) in order to locate the content or information that one requires. With older media, physical access is rarely considered to be a significant issue: terrestrial television and analogue radio are now more or less universally available, and the majority of children now have access to both in the private space of their own bedrooms. However, with new media, as we shall see in Section 4, there are still significant inequalities in levels of access between different social class groups.

Access to broadcast media

In the UK, access to terrestrial television and to analogue radio is effectively universal. Access to digital television is obviously less widespread – and in fact at 57% of households in 2004 was only slightly higher than the percentage with internet access (Ofcom, 2004). (Nevertheless, both figures are steadily rising, and both are higher for families with children, as we will see below.) Such figures also show that access to

digital television (and indeed to video cameras) is fairly evenly spread across social class differences; and in fact social classes C2DE are somewhat more likely to have a satellite dish than social classes ABC1. Likewise, it appears that a majority of children now have access to television and radio in their bedrooms; although here again, it is middle-class children who are less likely to have privatised access in this way (Livingstone and Bovill, 1999). It is also worth noting that children are relatively well-served – at least in terms of quantity – by specialist cable/satellite channels; and that children who do have multi-channel access tend to opt for such channels quite extensively.

Similarly, radio is a pervasive aspect of young people's lives, particularly for teenagers. Ratings gathered by the industry body RAJAR show that young people are regular users of this medium, and that no less than 74% of their listening is to commercial stations. In research by the BSC and the Radio Authority (Millwood Hargrave, 2000), 41% of adult respondents said that they regularly listened to radio with their children. Nevertheless, the most recent research (Ofcom, 2004) shows that children (aged 4-14) listen to the radio much less than other age groups: at just under 12 hours per week, their listening is less than half the average figure for adults. This must partly reflect the lack of specialist provision for children. By contrast, ratings for young adults (15-25) are significantly higher, although still below the adult average: this partly reflects the fact that this age group is well served by specialist music stations (which are also popular with children). Young adults are also increasingly likely to be accessing radio via new media, for example digital radio, the internet and particularly mobile phones.

In this context, therefore, access to broadcast media would seem to be not only a matter of disposable income, but also related to the available provision, as well as with children's and parents' tastes and values. As we shall see in more detail in Section 4, there are significant differences in terms of how parents regulate their children's access to media; and while these partly reflect factors such as socio-economic status and the size of the family, they are also related to parents' broader values and philosophies of child-rearing. For example, the question of whether children *should* have access to television in their bedrooms is hotly contested in many families; and this debate reflects broader ideas about the nature of family life, and the extent to which parents should exercise absolute control over their children.

Access to the internet

Much of the public debate about access has centred not on broadcast media but on computers, where disparities between different social groups are much more evident. At least in principle, the UK is now within sight of the government's target of universal internet access by 2005. The obvious question, however, is what we mean by 'access'. The most recent British study (Livingstone and Bober, 2004a) suggests that 74% of children and young people (aged 9-19) have access to the internet at home (though 3% of these have access via a games console or digital TV rather than a computer); while official statistics show that 99% of UK schools now have internet connections (DfES ICT in Schools Survey, 2003), and that the ratio of computers to students is currently 1:7.9. The problem here is that these figures show access 'in principle': they do not tell us to what extent, or how easily, children are actually able to use the internet. Nevertheless, 64% of children and young people also claim to have accessed the internet outside their home or school: 48% in someone else's house, 31% in a public library; 17% via a mobile

phone; 9% in an internet café; 7% at a parent's work place; 6% via a games console, 4% via digital TV and 4% at their own work place. In terms of frequency of use in any location, 41% are daily users, 43% are weekly users, 13% are occasional users and only 3% count as non-users (Livingstone and Bober, 2004a).

However, this still leaves a large percentage of children (29%) without access to the internet from home using a computer. Even for those children with home access, socio-economic conditions influence the *level* and *quality* of access (see Section 4), as do the different ways in which computers are used in the household. Holloway and Valentine (2003) found that factors such as parenting styles, parents' and children's differential interpretations of what the machine is for, and the time-spaces within which the home computer is located and used are all factors in determining children's access. As Sutherland et al. (2000) suggest, the computer is adopted into an 'already constituted social space' characterised by distinctive roles, relationships and knowledge among family members.

Similar arguments can be made in relation to schools. According to the UKCGO project (Livingstone and Bober, 2004a) 92% of young people have accessed the internet at school. However, nearly one third (30%) of pupils between ages 9–19 report they have not received lessons on using the internet. The majority who have been 'taught something', report having received 'a lot' (23%), 'some' (28%) and 'just one or two' lessons (19%). This report also found that the age of the child is significant. Those in their early teens have greater access to the internet at school than the youngest group (87% of 9–11 year olds) or the oldest group (83% of 18-19 year olds). (Again, it is important to note that we do not have figures for younger children here.)

Livingstone and Bober (2004a) argue that schools are central to redressing the digital divide, for they can 'equalise the effects of inequalities in resources at home'. However, Holloway and Valentine's (2003) analysis of children's uses of ICT concludes that the government's IT strategy is not working in practice. They found that there are highly uneven patterns of ICT provision between schools. Bidding practices inevitably create winners and losers in terms of resources, and the schools' management philosophies encourage or discourage different types of use according to their interpretation of government policy, their vision of the role of ICT in the life of the school and the community in which it is located. In some of the schools they researched, children's access was in fact very restricted and open access during break times was not permitted. We will take up these questions in more detail in Section 4 (Media in schools).

These disparities in terms of access inevitably translate into the frequency of use – although access is by no means the only factor here. As Livingstone and Bober (2004a) show, young people with home access are more likely to be daily users, while those with school access only are more likely to be weekly users. Furthermore, frequency of use is positively associated with children and young people's wider uses of the web and with them having more confidence in their own skills. Daily users, for example, are more likely to visit more sites than those who use the internet once a week. Amongst those who use the internet weekly, half concentrate their use on less than five different websites; while amongst daily users, one third had visited more than ten sites in the previous week. Daily users are also most confident in their skills, with twice as many as weekly users saying that they know how to set up an e-mail account, send an instant message, download a music file, set up a file or get rid of a virus.

Finally, these different levels of access also affect the likelihood of children engaging in online production. The UKCGO project found that 34% of the children surveyed had set up their own web pages, and that this was a more common activity amongst the daily rather than weekly users (Livingstone and Bober, 2004a). Other studies have found disappointingly low numbers of young people creating their own internet content. Facer et al. (2003) argue that this may be attributable to wider societal and educational factors: their study shows that only 20% of children have ever used computers for creating web sites in schools; while Bober (2004) argues that home pages have not yet become significant to young people in their lives, and that lack of interest is a key factor, particularly for younger children. Cranmer (2004) uses website production as a measure of children's diverse uses, and shows how socio-economic conditions in the home underpin access and regulation, impacting on the opportunities for skills development even for highly motivated young internet users.

Access to mobile telephony

Academic research on mobile telephony is still at a relatively early stage of development, at least in the UK. Although a great deal of research has been undertaken within the industry, little of this is in the public domain; although several academic studies are now starting to emerge. From this we know that children and young people in the U.K. have extensive access to mobile phones: BMRB's TGI research (BMRB, 2004) shows that 71% of 11-19-year-olds have their own mobile phones, an increase from 42% in 2000 – while other surveys suggest that as many as 90% of young people (Crabtree et al., 2003) and 90% of children age 5-9 (Richardson, 2003) have some degree of access. In terms of use, Vincent (2004) notes that over 16 billion text messages were sent in the UK in 2003, with teenagers being the most avid users. Although most of the research in this field focuses on teens' use of mobiles, children as young as two and a half are reported to be aware of text messaging and know when a text has arrived (Marsh, 2004).

This is an area where young people are popularly held to be significantly more competent than the majority of adults. In fact, the bulk of the research in this field looks at teenagers and focuses on the social functions of mobile phones – how social networks are constructed and maintained through mobile phone use, how young people's identities are expressed through their mobiles, the impact on power relations between family members and peers, and the changing social geographies of young people (Ito, 2003; Ling and Yttri, 2003; Oksman and Rautiainen, 2003; Taylor and Harper, 2003). From this research, we can safely say that there is a high degree of *functional* literacy, at least amongst teenagers. Teenagers are generally fluent at texting, retrieving messages, playing games, checking call history, downloading ring tones and using their address books. However, there has been little research on children younger than teenagers, perhaps because the interest in mobile phones mainly starts at age 10–12, when peer groups are expanding and children are taking part in more out-of-school activities (Oksman and Rautiainen, 2003).

Locating content: broadcast media

Again, locating appropriate content in the case of analogue terrestrial television or radio is rarely seen to be a problem; although perhaps it should be considered more fully, as the majority of children now live in homes with multi-channel television. Atwal et al.

(2003) show that in analogue terrestrial-only homes, children know the times of their favourite programmes, while in multi-channel homes they know the channels on which favourite programmes appear, and use the electronic programme guide and the controls to flick around and create a schedule.

There is an emerging body of research on the usability of electronic interfaces, which suggests that users often experience difficulties in using the interactive facilities of digital television: in one report for the ITC, these were given similar ease of use ratings to home computers (Freeman and Lessiter, 2001). Likewise, a recent report on Electronic Programme Guides for the ITC and the Consumers' Association (Freeman, Lessiter and Williams, 2002) found that problems arose, for example due to difficulty in handling the remote control device, confusing symbols and labels, on-screen information that is hard to read, and complicated menu structures. User manuals seem to be of little help for most viewers. In general, it seems that older people are more likely to encounter difficulties, although attitudinal factors also play a role: viewers will persist in the face of obstacles if they are sufficiently motivated to find what they want. In this research, the youngest participants were thirteen years of age; and we have been unable to locate research of this kind looking at the specific difficulties that may be faced by younger children.

Locating content: the internet

In relation to the internet, children and young people are frequently seen to have adequate functional literacy skills (i.e. the skills and competencies needed to access and search the internet). Indeed, it is often suggested that their skills exceed those of their parents. Survey data collected for the UK Children Go Online (UKCGO) project (Livingstone and Bober, 2004a) found that most children (56%) who are weekly users consider themselves to be 'average' in terms of online skills and one third (32%) consider that they are 'advanced'. Furthermore, the key skill associated with internet use is said to be finding information, in which most children (87%) said they are confident. Yet in the UKCGO focus groups, children admitted to finding searching and information overload problematic (Livingstone and Bober, 2003). Moreover, observational data collected for the project has concluded that children frequently lack the skills to use search engines, browsers and URLs effectively. One conclusion that can be drawn from this, therefore, is that children's reported confidence may presently exceed that of their expertise, and that further development is needed to enable children to gain more competence.

Conversely, Facer et al. (2003) found that children generally *did* have the functional expertise to locate what they were looking for, but not the critical literacy required to interpret, critique and manage that information. In these authors' words, children were unable to move 'beyond information to knowledge and understanding', particularly in using the internet to support formal education. (It is important to note that neither of these studies considers children younger than nine years of age; and that there is a general lack of research on younger children's use of the internet and other new media. The forthcoming collection by Marsh (in press) should provide some useful case studies in this area, however.)

Regulating access

Access also has a 'negative' dimension – that is, the ability to avoid or filter out content that one does not wish to encounter. This entails an ability to locate and make use of the available forms of information and guidance (such as that provided by regulators and broadcasters), activate available filtering mechanisms, and (in a more active sense) to make complaints or representations to official bodies.

In relation to old media, the television watershed provides one example of this form of guidance. Ramsay (2003), in research undertaken for the BSC and ITC, found that only 22% of the panel of 1500 children (aged 4-15) said they had heard of the watershed; although of these, 72% thought it was a good idea. Parents showed high awareness of and support for the 9 p.m. watershed on television, but considerable confusion about whether it applied to cable and satellite channels. They showed strong trust in pre-watershed programme content, especially before 7.30 p.m., and this was seen to be an essential part of parents' regulation and control of children's viewing. However, the older the children, and the more televisions in the house, the less feasible such parental surveillance is seen to be.

In the case of radio, Andrea Millwood Hargrave (2000), in a report for the BSC and the Radio Authority, found that older children and adolescents tended to listen to radio in their bedrooms and to different stations from their parents. Technologies such as personal stereos, headphones and the ubiquity of radio were seen to make the regulation and control of listening more difficult. There was a strong belief amongst adults in the existence of a 9 p.m. radio watershed, even though this is not in fact a formal requirement.

Buckingham and Bragg's (2004) research on older children's and parents' responses to sexual content on television and in other media, undertaken for the BSC and others, found that most of them were aware of regulatory systems such as the watershed and film classification, and used these as one source of information when deciding what to watch. In general, these children agreed that such guidance was necessary – albeit primarily to protect audiences (such as younger children) whom they deemed to be more vulnerable than themselves. This was felt to be particularly important in relation to material that would be seen in more public settings, such as on advertising hoardings, or on television before the watershed. In some instances, children positively rejected material which they decided was 'too old' for them, although they often resisted or rejected parents' attempts to decide on their behalf. Perhaps particularly in relation to sexual material, both parents and children seek to define themselves as self-regulating, autonomous audiences, who are capable of making their own decisions about what they should watch.

We will return to some of these issues in addressing the role of parents in Section 4; but it is worth considering here whether children's knowledge of these mechanisms contributes to their ability to evade them, and hence to access content that their parents might consider inappropriate. If children are able to 'outsmart' their parents' attempts to set up filtering software on the home computer or to reset the 'parental control' devices on the cable TV, this could well be seen to reflect a high level of media literacy, even if it is one that parents might not wish to encourage. More broadly, there is the well-established possibility that rating and classification systems serve to hold out 'forbidden

fruit', particularly for older boys (Bushman and Cantor, 2003; Wood, 1993), and hence make them more likely to access such material.

Awareness of risk

A final dimension to consider here concerns children's awareness of personal risk, particularly in relation to new media. Research indicates that risk-taking serves specific developmental purposes for adolescents as they define themselves as more mature than children: these include achieving social status, developing autonomy and facing anxieties (Lightfoot, 1997). Children and young people's statements about knowing how to avoid risks and expressions of invulnerability can also be explained in psychological terms as 'a product of having a sense of control or self-efficacy' (Perloff, 1983 in Valentine and Holloway, 2003: 93). Awareness of internet risks and the presence of risk-taking, therefore, can be seen as developmental factors contributing to media literacy.

Existing research on children and young people's awareness of risk focuses almost entirely on contact with paedophiles and exposure to pornography. In these areas, UK-based surveys show a high awareness of personal safety issues connected with internet use. The UKCGO survey (Livingstone and Bober, 2004a) reports that '74% are aware of some internet safety campaign or have heard or read a news story that made them think the internet can be dangerous', and the Cyberspace Research Unit (O'Connell et al., 2004) reports that 9 out of 10 children reported awareness of rules about not giving out personal details. Although the Cyberspace Research Unit reports lower awareness of rules relating to face-to-face meetings with people met through online chat, UKCGO reports that users who have made friends online follow safety rules. Both reports indicate that almost all the children who met up with online contacts had an enjoyable time (the two exceptions reported receiving verbal abuse from the person they met). As Livingstone reminds us, 'the link between risks, incidents, and actual harm is genuinely tenuous: not all risks taken result in worrying incidents, not all worrying incidents result in actual or lasting harm' (2003: 157).

Meanwhile, there is emerging public concern regarding children's safety in connection with new 3G (third generation) mobile phones offering photo messaging, video streaming, unlimited internet access and Bluetooth technology (BBC News, 2004; Carr, 2004; O'Connell, 2003). Advocates for regulation of these technologies argue that children are more likely to be susceptible to bullying and paedophiles (Batty, 2004). However, such claims have yet to be sustained by any empirical research; and, as with research on internet risk, we need to find out how these risks are understood and experienced by children, and how they learn to deal with them.

Access and exposure to online pornography is another public concern. Statistics are available to indicate frequency of exposure to online pornography (Carr, 2004; Livingstone and Bober, 2004a), and one might argue that media literacy skills are crucial for children to be able to cope with such encounters. The UKCGO survey indicates that children and young people, when encountering online pornography, will leave a site, delete an e-mail or pursue the image (look at it, share with a friend, go back to it). Although this survey gives us a rough indication of children's responses to such material (e.g. 54% of weekly users 'say they didn't think too much about it'), there has been little qualitative research to examine how such material is experienced or even understood (Sutter, 2000 in Livingstone 2003). A small scale study by Burn and Willett (in press)

indicates that children share stories about pornography and paedophilia that are often based on half-truths, especially when such topics are considered taboo; while Bevort and Breda (2001) found that French children were more concerned about 'race hate' sites than about pornography or paedophiles, and that the more they used the internet, the more confident they became of their ability to cope with such material. Both studies suggest that the way forward for media literacy is through open discussion and engagement with risks, rather than censorship.

One alternative for protecting children from internet dangers such as paedophilia and pornography is through filters and monitoring software, and children's understanding of such regulation can be considered as part of their media literacy. In this area, the UKCGO survey indicates that children are aware of filtering or monitoring practices. Of the children surveyed, 35% understand that filtering software has been installed on their home computer, 23% say monitoring software, while 13% say that some sort of software has been installed, but are not sure which; 38% say porn is blocked or filtered, 25% say junk mail, 18% ads and 17% chat rooms (Livingstone and Bober, 2004a). However, there are discrepancies between what children and parents report in this area, and therefore it is not clear what the actual figures are for use of filtering and monitoring software, nor do we have a clear picture of children's understanding of these practices.

Given its acknowledged limitations, filtering software of this kind may not in fact be the most effective way of dealing with the issue of unwanted content (see Section 4 below); and, more broadly, it could be argued that protecting children from such dangers may not be the best way of enabling them to deal with them. Indeed, an exaggerated preoccupation with risk could well function as a barrier to the development of media literacy. Such arguments would lead to the recommendation of educational strategies, such as those proposed by the European-funded Educaunet project (www.educaunet.org).

Furthermore, it could be argued that this awareness of risks extends only to those most frequently promoted by moral campaigners. Although children and young people are part of the e-commerce industry through gaming, downloading music, shopping and online auctions, we found no research on awareness of financial risk; or indeed of technical risks such as viruses. As we shall see, children's awareness of the risks of online marketing is limited (Seiter, 2004a).

1.2 Understand

In this area, there is a significant imbalance in the available research. While there is an extensive literature on the development of children's critical understanding of analogue television, there is very little equivalent research in relation to the internet, or indeed any of the other media within our remit here. Even in the case of radio, there has been very little academic research on young people's understanding or response to the medium. Existing research (e.g. Millwood Hargrave, 2000) reports familiar adult concerns about the dangers of children being exposed to 'inappropriate' content and 'bad' language, but it does not say anything about the responses of children themselves. Our review here thus focuses primarily on television; and in attempting to organise our account, we have found it useful to employ the framework of four 'key concepts' embodied in most media education curricula (see Buckingham, 2003a): language, representation, industry and audience.

Media language

Children's basic understanding of the 'language' of television develops at a very young age. The fundamental 'vocabulary' of camera movements and positions, shot transitions and editing conventions is fairly well understood by most children by the age of four or five (Messaris, 1994; Meyer, 1983; van Evra, 2004). As Messaris (1994) argues, this is partly because these elements correspond to everyday perceptual and cognitive functions, such as focusing one's gaze. Thus, children learn that a zoom in to close-up does not mean that an object has got bigger, and that a cutaway to another object does not mean that the first object has disappeared (Salomon, 1979). They learn to recognise the beginnings and endings of programmes, and to perceive the formal differences between programmes and advertisements (Jaglom and Gardner, 1981). They learn to 'fill the gaps' which have been left in editing, for example when a character leaves a room and is next seen walking down the street (Smith et al., 1985); although understandings of more complex conventions such as flashbacks develop rather later (Calvert, 1988). A recent study of younger children (van den Broek et al, 2003) finds analogies between the comprehension of print and television texts in young children, and demonstrates that they have a much greater capacity for inferential reading and understanding causal relations than is usually assumed. In younger children, this understanding is more secure in relation to concrete events on screen; they develop understandings of more abstract representations at a later stage.

As they grow older, children build on this 'micro-level' understanding, forming 'scripts' or 'schemata' relating to broader categories such as genre and narrative. These scripts serve as a kind of cognitive 'short cut', for example by enabling children to predict the likely outcomes of a story, to assess characters, or to make judgments about what is and is not realistic (see Representation below). Thus, children develop a multi-faceted 'genre system' for categorising television programming based on judgments about form, content and intention (Buckingham, 1993a: Chapter 6; Eke and Croll, 1992). Likewise, they develop an understanding of typical television narratives that enables them to distinguish central incidents from peripheral ones; and subsequently to infer missing content, for example relating to the unstated motivations of characters (Anderson and Collins, 1988). Much of this development occurs between the ages of five and eleven, a period during which children tend to watch the greatest amount of television.

As with the other areas to be discussed here, these understandings can be mapped onto a standard developmental model. For example, in terms of Piaget's account of child development, children's ability to infer character motivations would be seen as characteristic of the ability to 'decentre', which is achieved during middle childhood. Likewise, their ability to understand more complex forms of humour such as sarcasm and irony depends upon the ability to distinguish between what is said and what is meant – and this again is something that only develops later in childhood (Young, 1990). Broadly speaking, older children are more 'analytic' viewers, who make the most of linguistic material, whereas younger children are more reliant on images and sound effects (van Evra, 2004). These characteristics are often seen to account for the popularity of different TV genres with different sections of the child audience.

However, psychologists also recognise that children's comprehension and processing of television content depends very much on their motivation, and on the amount of 'mental effort' they invest (Salomon, 1983). Furthermore, there is a danger here of neglecting the

contextual aspects of television viewing, and the social practices of which it forms a part. We will return to these issues below.

Meanwhile, there is no significant academic research that applies similar questions to new media. In the case of the internet, for example, it would seem necessary to consider how children interpret and understand the design of web pages, or the ways in which links within and between websites are organised. Burn and Parker (2003) and Buckingham and Scanlon (2004) have analysed the structure of 'edutainment' sites aimed at children, drawing attention to factors such as the combinations of verbal and visual elements, the navigational structure of the sites, the forms of interactivity that are on offer, and the ways in which users are addressed. However, this research needs to be complemented by analyses of how children actually engage with such sites.

Finally, there is some evidence that these 'linguistic' understandings can be transferred from one medium to another, particularly given the increasing degree of integration between media in contemporary children's culture (Mackey, 2002; Robinson, 1997). For example, Burn (in press a, in press b) has analysed the engagement of a small sample of children with the book, game and film of *Harry Potter and the Chamber of Secrets*, finding that while some conceptual understandings (such as point of view and narrative) carry across all three media, others are specific to the medium, such as their understanding of choice systems offered by the game, or of combat structures which require strategic play. These are small-scale, early studies, however, requiring confirmation by wider samples and further study of development through longitudinal tracking.

Representation: realism, fact and fiction

Here again, children's understanding of the basic principle of representation begins at a very young age. For babies, television must appear as simply a random selection of shapes, colours and sounds. However, as they develop the ability to identify three-dimensional shapes, and come to understand the functions of language, children begin to develop hypotheses about the relationship between television and the real world. To begin with, television may be perceived as a kind of 'magic window', or alternatively as a magic box in which tiny people are living. Yet by the time they are about two, children seem to have understood that television is a *medium* that represents events which are taking place (or have taken place) elsewhere (Jaglom and Gardner, 1981). Through the experience of video, they also come to understand that television can be recorded and replayed, and that it is not necessarily 'live'.

Between the ages of three and five, the distinction between television and real life gradually becomes more flexible. While very young children appear to believe that all television is real, slightly older children may express precisely the opposite view; yet by around the age of five, children generally give more considered responses, suggesting that television is sometimes real, sometimes not (Messaris, 1986). Between about five and seven, they also begin to distinguish between different kinds of programmes according to how realistic they are perceived to be. For example, they are likely to distinguish between cartoons, puppet animation and live action, and may well find events portrayed in live action drama or news much more frightening than similar events shown in cartoons (Chandler, 1997; Dorr, 1983; Hawkins, 1977). These relationships are

often worked through in their television-related play, where children are actively experimenting with the differences between 'real life' and 'just pretend'.

By middle childhood (age 8-9), children are becoming more aware of the possible motivations of television producers – and indeed often quite cynical about them. For example, they will discuss how the narrative of a soap opera is organised in an attempt to keep us watching, or how advertisements attempt to persuade us to buy (Buckingham, 1993a). They are also keenly interested in how programmes are produced, and (by the age of ten or eleven) are offering increasingly 'critical' judgments about the quality of the acting or the realism of the décor (Davies, 1997; Dorr, 1983; Hodge and Tripp, 1986). In both respects, they are much more likely to regard television as an artefact, and much less likely to see it as simply a 'slice of life'.

Between middle childhood and early adolescence (between nine and twelve), children are also increasingly bringing more general social understandings to bear in their judgment of television, noting what is absent as well as questioning what is present (Hawkins, 1977). They may compare their own experience of family life, for example, with the representations provided on television, judging them to be less realistic as a result (Dorr et al., 1990). Yet they may also acknowledge that in many cases, and for many reasons, television may not seek to be realistic in the first place, and that the need for plausibility has to be balanced against the need to amuse or entertain. Similarly, while a particular scene may be perceived as unrealistic on an empirical level – for example, in genres like science fiction or melodrama – it may also be seen to express an 'emotional realism' which children may recognise and find moving (Buckingham, 1996).

Finally, from the age of about eleven or twelve upwards, children may begin to speculate about the ideological impact of television, and the potential effects of 'positive' or 'negative' images of particular groups on audiences, even hypothetical ones. They begin to become aware of the process of stereotyping, both in real life and in the media. They may also come to perceive the differences between different styles of realism, and develop an aesthetic appreciation of the various ways in which the illusion of reality is created by television (Buckingham, 1996).

There has been a considerable amount of research in this area, although most of it tends to focus on younger children. Despite considerable debate about the dangers of stereotyping and well-established evidence of systematic biases in the representation of different social groups, there has been relatively little research about how children make sense of such representations. Much of the research is concerned with establishing evidence of negative effects (van Evra, 2004: Chapter 6), and there has been considerable debate about its validity (for a critique, see Durkin, 1985).

Meanwhile, as media genres change and evolve, new forms of literacy are clearly required. One development of particular relevance here is the emergence of so-called ‘reality TV’ (in the form of shows like *Big Brother*), and of the growing popularity of more entertainment-based forms of factual television (from *Pop Idol* to *Faking It*). These new forms raise significant questions about viewers’ ability to distinguish between fact and fiction, and their awareness of the various forms of manipulation that such programmes typically entail. There has been little research on younger viewers’ perceptions of these issues: Annette Hill’s forthcoming book (2004) is the first systematic study of audience responses to these new forms of popular factual television.

Finally, there has been virtually no research analysing how children make similar judgments in relation to new media. Facer et al. (2003) argue that children tend to accept information accessed via the internet at face value, as though it were immediately authoritative; while Seiter (2004b) also suggests that children may find difficulties in evaluating the information they find on the web; and Bevort and Breda (2001) found that children did not spontaneously question the credibility or trustworthiness of websites.

Industry: understanding the motivations of producers

As we have noted, children become aware at a comparatively young age of the fact that television advertising and programmes have been deliberately produced. However, it takes rather longer for them to become aware that the producers may have particular intentions or motivations in mind, whether they be to sell or to persuade.

A good illustration of this is in the development of children's understanding of the persuasive intentions of advertising. Research suggests that children become aware of some of the formal differences between advertisements and programmes at the age of two or three (Jaglom and Gardner, 1981); but the knowledge that advertisements are designed to persuade them to buy particular products tends not to appear until about the age of seven (ITC, 2002; Young, 1990). In middle childhood, children can often display a considerable degree of cynicism about advertising – although of course this does not necessarily mean that it fails to influence them (Buckingham, 1993a: Chapter 8).

Deborah Roedder John (2002) provides a comprehensive model of 'consumer socialisation' that relates children's understanding of persuasive intention to broader characteristics of particular developmental stages. During the 'perceptual' stage (age 3-7), children remain at the level of perceptual rather than abstract or symbolic thought. At this age, they distinguish between commercials and programmes primarily on the basis of perceptual characteristics, and have a generally positive attitude towards them. In the 'analytical' stage (age 7-11), they make significant leaps in their ability to identify underlying principles, and to take account of multiple perspectives. Accordingly, they distinguish advertisements on the basis of their persuasive intent, and recognise that they can be dishonest, biased or deceitful. Finally, in the 'reflective' stage (age 11-16), they become more able to understand the complex social contexts and meanings related to consumption. Their attitude towards advertising modulates somewhat at this age, becoming sceptical and discriminating rather than comprehensively dismissive.

As John acknowledges, this kind of model identifies what children know (competence), although it fails to tell us a great deal about how that knowledge is actually utilised (performance). This is a general difficulty for most such models of media literacy – and indeed for psychological research more broadly. As with research on children's understanding of 'media language' (e.g. Smith et al., 1985), research using more 'child-centred', visual approaches tends to yield higher estimates of children's level of awareness than verbal questionnaires with closed questions (e.g. Zuckermann and Giannino, 1981). This is in line with findings in general developmental research (see Donaldson, 1978).

One further difficulty here relates to the emergence of new kinds of advertising or promotional activity, particularly in the context of new media. Much of the research on advertising dates back to the very different media environment of the 1970s and 1980s;

and much of it derives from the US, where the advertising environment is very different from the UK. In recent years, marketers have become increasingly reliant on strategies such as sponsorship, product placement, event marketing, media-related merchandising and branding – not to mention even less visible practices such as peer-to-peer marketing, 'cool hunting' and data mining. Many commentators have seen such practices as a form of exploitation of children (e.g. Center for Media Education, 1997; Quart, 2003; Schor, 2004), although there has been relatively little research looking at how children understand and respond to them. In a survey by the European Research into Consumer Affairs (ERICA), 48% of children said they had seen something online which made them want to make a purchase, and one quarter of those surveyed had bought items online (European Research into Consumer Affairs, 2001). ERICA points out that purchasing products online is becoming significantly easier for children with new methods of payment. ERICA also cites research which suggests that children are confused by the blurring of advertisement and content on websites; while Seiter (2004a) shows that young people who are quite critical of mainstream advertising are much less likely even to be aware of such practices, or to view them as anything more than a 'fact of life'. Further, research by Buckingham et al. (1990) suggests that pre-teenagers are often unaware of the economic functions of advertising in the media industries.

To what extent are young people aware of the working of persuasion in other areas of the media? Buckingham's (2000) research suggests that young people are quite alert to the possibility of bias or misrepresentation in television news, although this becomes a more significant factor across the teenage years. The pre-teenage children in this study were quite capable of critically debating the selection of content and the use of visual evidence in news stories, and were frequently quite cynical about the motivations of the producers. However, Buckingham also suggests that this awareness of bias depends partly on the viewer's access to other information, and partly on their own pre-existing values and priorities: material that reflects one's own values is less likely to be subjected to critical scrutiny. Research with adults certainly confirms this: Miller (1997), for example, suggests that people in Northern Ireland were more likely to be critical of news coverage of the conflict there than people in England or Scotland, who lacked direct experience of it.

When it comes to new media, young people seem less inclined to ask such questions, at least thus far. Facer et al. (2003) found that young people lacked both knowledge and interest about how information was produced for and within digital environments. Digital content was 'often seen as originating not from people, organisations and businesses with particular cultural inclinations or objectives, but as a universal repository that simply existed "out there"' (86). By contrast with more optimistic popular commentators (e.g. Tapscott, 1998), these authors argue that children are generally 'ill equipped' for the online world. Likewise, Livingstone and Bober (2003; 2004a) also found that children's awareness of the motives behind the creation of websites and a critical approach towards their reliability and authority appear to be little developed. Their findings indicate that amongst the children they surveyed, almost half think information on the internet can be trusted (49%), 38% trust most of it, 9% trust 'not much of it' and 1% trust none of it. These authors conclude that few children are aware of the commercial or persuasive strategies at work, although they are optimistic that such skills are beginning to develop.

In the case of mobile telephony, there is a lack of research into children's understanding of the economics behind the mobile phone industry. The research into critical awareness focuses primarily on children's awareness of 'phone etiquette' – for example, knowing

when it is socially appropriate to respond to a text (e.g. Taylor and Harper, 2003) – but it tends not to look beyond this. Research from Finland (Kasesniemi, 2003) shows that teenagers are keenly aware of the money they spend phoning and texting, but it does not suggest that they have much critical understanding of the economic factors involved, or the social or cultural dimensions of such practices. The exception to this is a description of a very small number of teenagers who opt for unfashionable models of phones in order to oppose mainstream fashion or try to slow consumption as fuelled by constant changes in technology. Wilska (2003) also identifies a substantial group of 'thrifty' mobile phone users, who are more prudent not so much because of a lack of economic resources, but because of a particular 'consumption style'. Likewise, although younger children (ages 6 and 7) understand concepts of storing data, menus and battery life, they show an inability to understand costs, and make distinctions between unnecessary and important calls (Kasesniemi, 2003).

Audience: monitoring responses

Within media education, the concept of 'audience' relates to the awareness of one's own and others' responses to, and readings of, the media. Little work has been done on children's understanding of this area; although the most relevant material to consider here relates to their ability to monitor their own emotional responses to media.

Technology has made 'adult' material increasingly accessible to children and young people, generating renewed concern about the influence of sexual and violent content. The debate about media effects is not one that will be addressed directly here (for reviews of these areas, conducted for the BSC, see Buckingham and Allerton, 1996, and Bragg and Buckingham, 2002). The more salient issue in this context is to do with how young people learn to 'handle' or cope with their responses to potentially distressing material.

There is a body of research on this question, much of it concerned with fright responses (e.g. Cantor, 2001). From a developmental perspective, this research suggests that younger children are more likely to be frightened by material that is visually explicit, while older children will respond more to abstract or 'psychological' threats. Children's coping strategies also develop with age (Cantor, 1994): younger children tend to use 'non-cognitive' strategies (sitting near their parents, cuddling a toy), whereas older children use more 'cognitive' strategies (reminding yourself it isn't real, thinking of something else).

Two studies conducted for the BSC provide substantial evidence on these issues. *Moving Images* (Buckingham, 1996) considered children's emotional responses to a range of television and film genres, including horror, melodrama and news. When it came to fictional material, the study found that children developed a range of strategies for coping with the unwelcome feelings it induced. These ranged from straightforward avoidance (simply refusing to watch, or - more ambivalently - hiding behind the sofa) to forms of psychological monitoring (self-consciously preparing oneself, or attempting to 'think happy thoughts'). While these strategies are clearly carried over from responses to stressful situations in real life, children were also seen to develop forms of generic knowledge - or 'media literacy' - that enabled them to cope specifically with media experiences. For example, they would attempt to predict the outcome of a narrative on the basis of their previous experience of the genre; they would use information from

beyond the text, both from conversations with others and from publicity material of various kinds; and they would use their understanding of how the illusion of realism is created, for example through editing and special effects. In all these ways, they sought reassurance from the knowledge that what they were watching was, precisely, fictional. Of course, this is not to suggest that any of these strategies is necessarily always effective, or that 'mistakes' of various kinds cannot be made: indeed, it would be impossible to learn such strategies without at some point having such negative experiences.

By contrast, the children in this study found it much harder to cope with the negative feelings induced by *non-fictional* material. They may learn to control their fear of Freddy Kruger by reassuring themselves that he is merely fictional; yet such reassurances are simply not available when one is confronted with news reports about grisly serial killings or images of suffering and war in Bosnia or Rwanda. Ultimately, this research suggests that there may be very little that children can *do* in order to come to terms with their 'negative' responses to non-fictional material, precisely because they are so powerless to intervene in issues that concern them.

Likewise, Buckingham and Bragg's (2004) research on children's responses to sexual content across a range of media, supported by the BSC, ITC and others, found that children became increasingly adept in self-monitoring their responses to potentially unwelcome or disturbing material. Although the children preferred to learn about sex from the media than from any other source, they also sought to protect themselves from material that they felt they were not 'ready' for – or which they simply found 'disgusting'. Encountering such material in the company of parents was particularly problematic; and the children described a range of avoidance strategies, including covering their eyes, hiding behind cushions, leaving the room on the pretext of getting a drink, and in some cases even engaging in outspoken moralistic condemnation.

Here again, media literacy played an important role in mediating their responses to sexual content. Some of the arguments employed here were quite generalised, and relatively superficial – as in the children's recurrent criticisms of how sex is used in advertising, or to sell newspapers. However, their more specific responses to sexual imagery in advertising or music videos displayed a well-developed understanding of how such images are constructed and manipulated. Likewise, their judgments of sexual storylines in soap operas and dramas showed a complex awareness of the conventions of narrative and characterisation.

However, it is important to emphasise here that 'negative' emotions cannot be so easily divorced from 'positive' ones; and indeed that what some people experience as upsetting or stressful may be experienced by others as intensely enjoyable (Buckingham, 1996). While some of the arguments relating to so-called 'emotional literacy' are problematic, it could be argued that media literacy is not simply a matter of learning to cope with 'negative' emotional responses but also of understanding 'positive' ones.

Similar findings are now emerging in relation to new media. The UKCGO project (Livingstone and Bober, 2004a) found that up to a quarter of children aged 7–16 may have been upset when they encountered unwanted material on the internet but that 'few' of these had reported this to an adult. This research found that children, particularly girls, expressed 'annoyance and disgust', rather than being upset, when being sent or shown

pornography, including its display on computers at school. In the UKCGO survey data, 61% said they would tell their parents if something made them feel uncomfortable. Girls and younger children were more likely to do so. The project also asked how children responded to encountering pornography and found that the most common reaction (56%) was to say that they leave the site immediately without looking at it. Similarly, when receiving pornographic junk mail, 65% said they deleted it without looking at it. One cause for concern, noted by Livingstone and Bober (2004a), was that only 8% of youngsters told a teacher or parent what they had found. Again, such responses would seem to suggest that children become quite skilful in regulating their own responses to such material; although (as with other internet research), it would seem important to explore such responses in greater detail, and in relation to specific examples, in a way that is impossible via a questionnaire.

Illustration: reading violence

As these various dimensions of media literacy develop, children become increasingly able to make differentiated critical judgments about what they see. This fact is often neglected in public debate, where children are often seen as vulnerable and innocent, and in need of adult protection. Emphasising their media literacy often leads to a rather different account.

If we consider an area such as television violence, we can see how these various forms of media literacy might be applied. Andrea Millwood Hargrave (2003), in *How Children Interpret Screen Violence*, a recent project conducted for the BSC, BBC, BBFC and ITC, found that children (aged 9-13) could clearly distinguish between fictional violence and violence that is 'real'. They made clear judgements about the justified use of violence, and this could affect how 'violent' an image was perceived to be in the first place. This research found no evidence of a conflation in children's minds between fictional and real-life violence. The children also proved to be very sensitive to cues provided by production techniques: they responded to changes in music, aural cues and visual images to build expectations of how violent a scene might be. Crucially, expectations of violence in various programme genres were clearly differentiated: dramas and soaps were recognised as fictional representations of the 'real' world, while the news was known to be 'real' and always treated seriously. Similarly, clear distinctions were made between cartoon-like film violence – even if the characters were played by actors rather than animated – and film violence that shows human emotions and pain, even though it may be set within a fantastical storyline.

This research is supported by a range of previous studies. Rather than assuming that 'violence' is an objective category - which can then be measured by simply counting how frequently it occurs – such research seeks to investigate what *audiences themselves* define as violent. Research suggests that there is significant variation here. Studies have found, for example, that girls perceive certain actions on television as 'violent' that boys do not (Dorr and Kovaric, 1980); that British viewers perceive violence as more 'serious' in British programmes as compared with American ones (Gunter, 1985); and that the same action can be perceived as violent in one context (a realistic drama, for example) but not in another (such as a situation comedy) (Gunter, 1985).

One might also expect to find differences here between children and adults - or at least adult researchers. Thus, studies have found that children do not generally perceive

cartoons as violent - even though they regularly top researchers' lists of the most violent programmes (van der Voort, 1986). Likewise, the 'violence' that so preoccupies adult critics of computer games is often so ritualised and dream-like that players themselves do not perceive it to have any significant analogy with real-life behaviour (Herz, 1997). Indeed, it has been argued that the term 'violent' is itself one that is predominantly used by outsiders wishing to pass negative judgments on particular genres: it is not generally used by experienced fans of those genres, except for the purposes of irony (Barker and Brooks, 1998).

From the perspective of media effects research, this could be taken as evidence that media literacy can play an important role in 'mediating' the effects of particular types of media content. However, there is a broader point here, which in many ways challenges the basic assumptions of effects research: it implies that the meaning of a particular form of media content is by no means pre-given, but actively constructed by the reader or viewer. By extension, it could be argued that media literacy should not be seen primarily as a kind of self-protective armour that will enable viewers to defend themselves from harm. On the contrary, there are different forms and modes of media literacy that reflect the motivations and social purposes of different audiences; and to this extent it might make more sense to talk (as researchers in print literacy increasingly do) in terms of plural literac*ies*.

Some caveats

As this implies, young people bring a wide range of skills, knowledge and understanding to their encounters with media. On the face of it, it would seem that they develop much of the media literacy they require without much evidence of a need for formal instruction. As we have seen, there are some areas in which their understanding develops relatively slowly – for example, in respect of the commercial functions of the media, which are a key concern for media educators. New media also present new challenges in this respect; and, as we have noted, there is as yet relatively little research about how children make judgments about the reliability of information on the internet, or how they learn to deal with unwelcome or potentially upsetting content. Children may have more experience of these media than many adults, but they mostly lack the real-world experience with which media representations can be compared; and this may make it harder for them to detect inaccuracy and bias. Even so, it would not be unreasonable to conclude that by the time they reach early adolescence most young people have developed a substantial critical awareness, at least in relation to media with which they are most familiar.

Nevertheless, there are some caveats to be raised here. This section has relied quite heavily on developmental accounts of children's media literacy. A developmental model is especially relevant insofar as it alerts us to important age differences; and this should in turn point to the necessity for any media literacy intervention to take account of the different needs of children at different ages. However, any such model inevitably tends to play down variations within a given age group, and it can be misleading to align 'ages and stages' in an unduly mechanical way. Furthermore, there are some broader criticisms of developmental approaches that need to be borne in mind, in addition to those we have already raised.

One of the most significant difficulties with such research is that it fails to distinguish between competence and performance. This is a recurrent difficulty within psychological and developmental research much more broadly. For example, the fact that a child fails to make an adult-style distinction between television and reality in the context of a laboratory experiment does not necessarily mean that the child is incapable of doing so. On the other hand, the fact that a child may demonstrate such knowledge when prompted to do so by a researcher does not necessarily mean that s/he will do so in real life. Measures of such abilities vary significantly according to the measures that are used; and the use of non-verbal measures, or more open-ended 'child-centred' approaches to assessment, often results in significantly higher attainment on developmental tests (cf. Donaldson, 1978). Research in more naturalistic settings, using more 'child-oriented' approaches, is likely to provide a more accurate indication of how media literate children actually are in practice. By contrast, assessing media literacy via multiple-choice questionnaires and attitude scales is likely to prove reductive unless it is supplemented with other approaches.

Secondly, stage models of this kind typically neglect the role of the social context, and of social differences, in the development of cognitive abilities. Children's minds develop through interaction with others, in specific social settings, and through concrete social experiences. As we shall see below (in Section 4), there are important social differences in children's media literacy; and the family plays a particularly significant role in this respect. This is especially important when it comes to formulating interventions: it implies that learning does not have to wait until children are deemed to be developmentally 'ready', but can proceed in advance of development.

A third, more radical, critique suggests that developmental models are implicitly normative, and involve the imposition of particular preferred definitions of 'adult' behaviour. Thus, children's behaviour is typically assessed in terms of the extent to which it is or is not 'appropriate' to their biological age. The index of 'maturity' and 'immaturity' becomes the standard against which they are measured, and come to measure themselves. And these differences are themselves defined in terms of what are seen to be specifically adult qualities - rationality, morality, self-control and 'good manners'. Thus, one could certainly criticise the notion of media literacy as representing a narrow, rationalistic view of how a well-regulated individual should behave in relation to the media – and one might well argue that it offers a definition that could hardly be applied to the majority of adults. As we have noted, there seems to be little place in some conceptions of media literacy for aspects of pleasure, sensuality and irrationality that are arguably central to most people's experience of media, and of culture more broadly.

Finally, there is the question of the role of education here. A developmental approach of this kind is clearly useful, at least in terms of specifying expectations at different ages. As we shall argue (Section 4), media educators currently lack a coherent model of learning progression. The finding that children are *already* media literate – at least to some degree - raises important questions about what and how we might hope to teach them. It suggests that educators need to be much clearer about what children already know, and about what they do not know.

1.3 Create

The ‘creative’ dimension of media literacy can be quite broadly defined. In addition to the more sustained and deliberate experience of media production – for example, in the making of home videos or web-pages – we would also include here more small-scale, everyday practices of communication – such as sending e-mails or texts – and interaction – such as participating in an online game or a chat room.

Indeed, digital technology has been seen to blur previously settled distinctions between ‘consumers’ and ‘producers’; and this makes it difficult to set clear parameters around the ‘creative’ aspect of media literacy. For example, does the ability to write and send an e-mail represent a form of creative media literacy? Is there a difference in this respect between this essentially private form and the more public activity of posting a message on an online message board, or participating in an open chat room? Is ‘file-sharing’, for example of music, or downloading a ring-tone for one’s mobile phone, a form of ‘creativity’ in this sense? And in what ways might participation in an online game be seen to entail this more creative form of media literacy? There is clearly a continuum here between activities that might be seen as forms of ‘interaction’ and those that involve ‘creation’, such as the production of websites, images or videos. Rather than attempting to separate these out, the following sections take a series of media in turn and investigate the potential for creative involvement in each case.

By comparison with the wealth of research on children’s understanding of media, the research in this area is quite limited. Certainly when it comes to more elaborate forms of media production, this is largely for the obvious reason that it is only comparatively recently that such activities have become at all feasible for young people. The most sustained examples of such practices have been in educational settings – both formal and informal – and we will consider research in this area separately in Part Two of this review. Nevertheless, the potential for involvement in media production is currently increasing at a remarkable rate. Home computer purchases now typically include a ‘bundle’ of software packages that will permit image manipulation, sound and music editing, the creation of web-pages and digital editing of moving images. Around 25% of UK households own video camcorders (ITC, 2002: the figure is 40% in the US), and these appear to be evenly spread across social classes. There also exist well-developed ‘camcorder cultures’, which incorporate social networks (online communities, friendship groups, local film clubs) and publications of various kinds (magazines, ‘how to’ books, websites).

In principle, creative activity of this kind necessarily involves the kinds of skills and understandings that we have considered thus far; and it might also be expected to assist in their further development. Media production requires an ability to access and manipulate technology, and an understanding of issues such as media language and representation, as well as an awareness of one’s audience. One might expect that the experience of production would impact back on people’s behaviour as ‘consumers’, for example by making them more critically literate. For example, creating even a simple webpage involves considering the design qualities of professional webpages, setting up hyperlinks to other sites and adhering to (or consciously breaking) conventions; and as such, one might expect it to encourage a more critical approach to professionally produced sites. Nevertheless, it is difficult to locate research that definitively proves this to be the case, particularly outside the field of education.

Video production

There has been very little research on home video production generally, and almost none on children and young people's use of camcorders in the home. In a US study, Moran (2002) discusses the cultural role of video production within homes and describes the production process as intertwined with families' uses of television, computers, telephones and film. Another US case study (Soep, in press) analyses the production of a short film by four boys. Soep describes how the boys experimented with ideas about masculinity and violence, sometimes parodying them, effectively critically analysing those ideas as displayed in other media (e.g. film, television, computer games, comic books). She also describes the boys as fantasising about future work and practicing skills as they move into the labour force.

In the UK, there is a small body of research that looks at teen video diaries, though all the video work under discussion was produced in the context of research projects. This research tends to conceptualise video diaries less in terms of media literacy than of self-expression, perhaps reflecting their literary roots in the written diary. However, there are conventions from other media that are included (e.g. whispering to the camcorder, close-ups) (Dowmunt, 2001). Furthermore, the research indicates that video production is a valuable space for children and young people to perform, explore and play with identity (Bloustein, 1998; Pini, 2001; Renov, 1996); and from research on video production in formal learning contexts, we know that production involves analysis of the media forms it is drawing on (see Part Two).

Online communication and production

By comparison with the relative paucity of research about domestic video production, research about online production is growing quite rapidly. Here the boundary between interaction (or communication) and production is particularly fuzzy. In this section, we will consider a range of activities including e-mailing, instant messaging, using message boards, creating online content (homepages, web logs, online journals) and sending, posting or storing digital photos.

Overall, large scale surveys indicate that there is a high degree of functional competency when it comes to online communication, especially among teenagers. Livingstone and Bober (2004a) report that with children who go online at least once a week, 72% send and receive e-mails and 55% send and receive instant messages. The report also indicates that use of e-mail and instant messaging is connected to gender, class and age, with older middle class girls being the highest users. In a study of U.S. teens, the Pew Internet and American Life study reported that 92% of those surveyed had sent an e-mail and 74% had used instant messaging (Lenhart et al., 2001). What is less clear from these statistics is the kinds of media literacy skills children and young people are developing, particularly within a complex environment such as instant messaging which can involve multiple simultaneous conversations, use of graphics (downloaded images, emoticons and photos) and online gaming. Very little research focuses on children and young people's online communication, partly due to the logistical and ethical difficulties of accessing private online activities. The exceptions are small-scale studies focusing on the linguistic structures of chat (Merchant, 2001; Werry, 1996) or the social aspects of online communication (Abbott, 1999; Tingstad, 2003; Willett and Sefton-Green, 2002).

Looking at other less private activities, there is a growing body of research around teenagers' online productions, particularly homepages and weblogs. Although the UKCGO survey found that only one third of the young people reported having tried to set up a webpage (Livingstone and Bober, 2004a), and Facer et al. (2003) describe setting up homepages as an 'exotic' activity, with only 9% of their sample reporting having done web-design, other research indicates there is a growing number of blogs and homepages produced by teenagers, especially teenage girls. Indications are that there are well over four million people worldwide creating blogs (an increase from fewer than 100 six years ago) (Henning, 2003). Research shows that at least half of all bloggers are teenagers and half are women (Herring et al., 2004), with one study proposing that a majority of bloggers are teenage girls (Orlowski, 2003).

One of the difficulties in assessing the proportion of young people who create online content is the pace of change in technology. In Facer et al.'s (2003) study (in which the data was collected from 1998-2000), 'web-design' most likely involved learning HTML, whereas currently children can easily design webpages using simple authoring tools requiring no programming (Willett, in press b). Most research into teenage blogging and webpages has not considered media literacy either in terms of skills or critical understanding of design, economics, etc. Instead, the focus of most research has been on the building of community and the 'identity work' involved in such practices (Davies, 2004; Driver, 2004; Scheidt, 2004; Stern, 2004; Turkle, 1996).

Thus, analyses of WWW home pages produced by children have seen them as instances of 'identity construction' analogous to the decoration of bedroom walls (Chandler and Roberts-Young, 1998). The home page is seen here as a hybrid form that combines aspects of public communication (such as broadcasting or publishing) with those of private communication (such as the personal diary or the letter), and to some extent crosses the boundary between them. This hybridity is particularly reflected in the combination of written and spoken forms that characterises these new media (Abbott, 1998). For some, the constant changes that characterise children's home pages are symptomatic of a 'postmodern' fluidity of identity (cf. Turkle, 1995); although others have argued that the net is a place in which young people feel they can be 'truly themselves' (Tobin, 1998).

Susannah Stern (1999) provides an account of three different types of home pages produced by teenage girls that begins to indicate something of the diversity, both of styles and of purposes, that characterises children's uses of the net. In Stern's categorisation, 'spirited' sites convey buoyancy and cheerfulness, and are used as a form of 'self-glorification'; 'sombre' sites are disillusioned, angry and introspective, serving as 'an asylum from a difficult and hostile world'; while 'self-conscious' sites oscillate between the two, reflecting the authors' lack of confidence about sharing too much online. Like other researchers in this field, however, Stern appears uncertain about whether to view the sites as vehicles for 'self-construction' or (more straightforwardly) as 'self-expression'. Ultimately, she concludes in favour of the authors' sincerity, arguing that the WWW represents a safe space in which girls can 'speak their experience' and 'say what is true'.

Similar issues arise in the analysis of IRC (Internet Relay Chat), although here the opportunities for verifying participants' identity claims are even fewer. Just as some have claimed that the anonymity of chat rooms can provide opportunities for play with gender identities, so the same may be true in relation to age (Smith and Curtin, 1998; Turkle,

1995): the possibility that children may ‘pass’ as adults, or adults as children, makes it very difficult to assess the reliability of data. While the potential risks here are widely recognised (see above), some researchers have argued that children and young people may be particularly empowered by the experience of these on-line communities. Tobin (1998), for example, argues that on-line communication may provide a form of ‘homosociality’ - a means for boys to share ‘personal’ concerns and problems that is denied to them in other social encounters; while Abbott (1998) suggests that the use of oral linguistic forms in this context displays ‘a striving for immediacy, response and dialogue, a sense of communion’ which is only partially satisfied elsewhere.

A related theme here is that of *learning style*s. Tobin (1998) argues that on-line communication produces ‘learning communities’ that cross boundaries of age and geography, and that are more democratic and collaborative than those of traditional educational institutions. As in more general assertions about on-line communities (e.g. Rheingold, 1993), such arguments tend to neglect the occasionally *un*democratic and exclusionary nature of on-line communication; although the opportunities these media present for group interaction, when compared with equivalent older technologies such as the telephone, cannot be denied. Combined with assertions about the more self-managed, participatory learning styles developed by computers - by games as much as by ‘educational’ software - these arguments lead towards a notion of a ‘deschooled’ society that comes close to that proposed by Ivan Illich more than thirty years ago (Illich, 1971; Snyder, 1998).

Similar issues have also been addressed by researchers looking at the impact of new technologies on traditional print-based literacy. Here researchers are calling for conceptual frameworks to include ‘new literacies’ (e.g. Kress, 2003; Lankshear and Knobel, 2003a), although there has been very little empirical research which investigates children’s digital productions. In a review of the literature in this field, Lankshear and Knobel (2003b) note that ‘the corpus of studies is swamped by an emphasis on developing a generic capacity to encode and decode alphabetic print rather than to promote competence as ‘insiders’ of practices and discourse communities that extend beyond conventional classroom reading and writing’ (77). Lankshear and Knobel (2003a) describe one five-year old who worked with his father to develop a successful website; but, like other case studies in this area (e.g. Tobin, 1998), there are significant questions about the representativeness of such examples. The very recent collection by Marsh (in press) should provide further instances of such research, looking at the media-related literacy practices of children aged two to four in the home: these studies seek to draw attention to the ways in which families mediate children’s communicative practices and support the development of their competency in navigating between media (see also Marsh, 2003; and Marsh and Comber, 2001).

Serious ethical dilemmas inevitably arise in this kind of research, particularly given the ease with which one can eavesdrop on apparently private communications (see Baym, 1998) - and these may be particularly acute in relation to children. Researchers are dealing here with forms of children’s culture to which it is very difficult to gain access - and which, in many respects, seem almost deliberately designed to exclude adults. Future research in this field will need to be much more detailed and sustained. In particular, researchers will need to triangulate between the analysis of texts (such as home pages and IRC sessions) and interviews with their producers and users; analyse the evolution of particular pages and sites over time; consider the place of such activities in the context of ‘real life’ relationships in the family and the peer group; and consider the

ways in which participants in on-line culture are or are not representative of broader social categories.

Online gaming

Gaming is largely outside the scope of this review, but online games (accessed via the internet) are clearly part of the continuum we have described, and also fall under Ofcom's remit. Game-play disturbs traditional distinctions between 'producers' and 'consumers', since players do have a significant role in 'creating' the texts they play – although this varies significantly from one game genre to another. In addition to actual game-play, online games also typically include a range of other activities such as message boards and chat facilities that run in parallel to the game proper.

Online computer games have been seen as an 'area that lacks credible statistics' (Game Research, 2004). The diversity of online games creates particular difficulties in terms of research. It is one thing, for example, to state that children or 'teens spend 7.4 hours per week playing games' ('Girl Gamers Grow Up', 2004), and quite another to specify what games those players are selecting, and why. Furthermore, as Woodcock (2003) has pointed out, such information is typically provided by the game's developers: there is little independent research into who is playing online computer games, the particular games they select, and the activities (social or otherwise) that are undertaken in conjunction with gaming. The coming availability of games on pervasive and mobile technologies is only likely to render the situation more complex.

Some commentators suggest that the most widely played computer games of all are actually online puzzle and card games. These are popular because they do not require a large investment of time to play, do not charge subscriptions and do not require broadband access (Jones, 2003). These games have also been identified as the ones most likely to be accessed and enjoyed by female players (Cardwell, 2004). It does not follow, however, that the puzzle style games incorporated into 'edutainment' websites intended for children are necessarily engaging for children – or indeed educationally worthwhile (Buckingham and Scanlon, 2004).

There are also online games that function more as sociable play-spaces, such as *Habbo Hotel* (Willett and Sefton-Green, 2002). Here children chat and socialise via colourful onscreen representatives (avatars), while exploring a virtual environment. Also prevalent on the internet are playable MUD's (Multi User Domains, or Multi User Dungeons), which resemble a cross between a game and a chat room. These games tend to be developed, distributed and maintained by enthusiasts, rather than by professionals or commercial developers. At least one Harry Potter fan website, for example, hosts a fan-built text-based MUD where young players take on roles and participate (by typing text) in shared scenario building (Daniel 2004).

Lively online fan cultures spring up around 'offline' or console games, and while such activities may not qualify as online games as such, they are representative of the online culture that has developed in tandem with offline or console gaming. In fan-sites connected with popular games (such as the *Final Fantasy* series) players will meet to chat with other players, exchange speculative fiction based on characters from within a game, or exhibit game related artworks (Burn, forthcoming). It is also commonplace to find elements of mentoring in such instances – sharing expertise about the game, but

also expertise relating to the production of fan art, in the form of drawing or writing, for example.

As well as these online puzzle and card games, MUDs and fansites, there are commercially produced and graphically rendered multiplayer games. The most prevalent genres here would be First Person Shooters (FPS) and Role-Playing Games (RPG). Even within these genres, there is a great deal of variation and diversity. Popular FPS games include *Quake*, *Doom*, and *HalfLife*. While these games are highly competitive, they also engender associated communities and productive social exchange: players form teams and guilds, for instance, and often play together in the context of internet or LAN cafes (Beavis et al., in press). In addition, these games inspire players to produce and distribute 'Mods' or modifications. This entails programming and distributing alternative versions or additions to these games - customized avatars, or 'skins', for example.

Online Role-Playing Games like *EverQuest* (featuring a fantasy setting) and *Anarchy Online* (a science fiction themed game) offer the player massive game worlds to explore. These digital worlds are persistent, in that time continues to pass whether the player is logged in or not. Such games are accessed via a monthly subscription, and require a broadband connection. With these games the server is maintained by the game's developers, which means that they are not susceptible to 'mod' style intervention by users. As Role-Playing Games, however, they are particularly liable to inspire creative and collaborative dramatic play. Even within this particular genre there is considerable diversity of content and access. The most played online RPG of all is *Lineage*, a South Korean game (that also has a US server); and in many countries, it is more common to access such games in cybercafés, rather than in the home.

Given the extent and diversity of online gaming, this is clearly an area in need of further research. On one level, many players of online games have a highly developed form of media literacy – at least in the sense that becoming a successful participant requires a considerable degree of knowledge and skill, some of which is generic and capable of transfer to other gaming experiences. However, there is a risk of romanticising this, since not all players are committed 'experts' of this kind. Future research in this field needs to incorporate an account of the range of players' experiences, and to reflect the diversity of game genres and forms.

Mobile telephony

Research from Finland, one of the earliest countries to adopt mobile phones on a large scale, documents a variety of creative uses of mobile phones by teenagers (Kasesniemi, 2003). In many cases, phones were treated as 'telegotchis', virtual pets to be cared for through cleaning, dressing (sometimes with a number of different covers), feeding (battery charging) and playing. The research describes complicated uses of mobiles, such as downloading images for different personal profiles, disguising identities in order to play jokes on friends through text messaging, and communicating with friends through codes signalled by ringing their phones and hanging up before answering.

The function of text messaging has been an unintended success of the mobile phone, and teenagers are the leaders of text messaging in Finland. The research studies collected by Kasesniemi (2003) describe a number of 'repertoires' of texting that teens

adopt, according to their audience; and the practice of forwarding jokes and chain texts is discussed as a social aspect of the use of texting. This research also shows that boys in particular are fluent and comfortable with text messaging, whereas writing a letter to the researcher was considered hard work – perhaps reinforcing concerns about a possible decline in traditional literacy practices.

Radio

Academic research on media literacy in connection with radio has focused primarily on radio production and participation, rather than functional aspects of radio consumption – although even so, radio production by youth is an extremely under-researched area. New technologies are changing the landscape of radio through digital radio broadcasting and production (Dunaway, 2000): Ofcom are for the first time granting full-time community radio licenses and the UK government has announced funding for not-for-profit radio. As such, one would expect youth radio stations to be flourishing in the near future. News reports describe various UK youth radio projects (e.g. Berliner, 2003; Plummer, 2004), and the Community Media Association (CMA) claims that the new community radio license will help in 'enabling communities throughout the UK to use the medium of radio to create new opportunities for regeneration, employment, learning, social cohesion and inclusion as well as cultural and creative expression' (Community Media Association, 2004).

However, we found no academic research that looks specifically at this area in the UK. In the US there is some work exploring the social aspects of youth radio. Soep (2003) describes a youth radio project and the processes involved in production (such as writing scripts, framing stories, recording, editing and critiquing) – many of which could be seen to involve forms of media literacy. More importantly, however, she argues that youth radio products are valuable pieces of research in their own right, because they focus on issues that impact on young people's lives and ideas that youth have developed and investigated themselves. There has also been some research in France, where 'youth talk radio' is a more common phenomenon: such programmes typically contain expressive but also controversial content, such as sexually explicit talk. Dauncey and Hare (1999) discuss the content of such shows and the reactions of the French regulatory authority for TV and radio; while Glevarec (2003) provides some insights into young people's responses. Given the potential changes afoot in radio broadcasting in the UK, this would seem to be an important area for future research.

1.4 Conclusion

Research in this field, while extensive, is uneven and incomplete in many respects. A summary of key gaps in our knowledge is contained in the overall conclusion of this review, but the following broad points are worth making here:

1. Most of the research relating to new media focuses on *access*: there is relatively little on *understanding*, particularly when compared with the work on television. In other words, we know a fair amount about how young people locate content via new media, but relatively little about what they do with it when they find it. Where there is research on understanding, it is based on small-scale case studies, which require larger and longer studies for confirmation.

2. There is relatively little research on how young people *create* media, new or old, in their everyday lives; although (as we shall see in Part Two) there has been some useful research undertaken in educational settings. Paradoxically, there is more research here on new media (particularly the internet) than on older media such as video or analogue radio.

3. It is difficult to assess the relative contribution of psychological development and social experience to the development of media literacy. Do children become more media literate simply as a result of greater exposure to the media? Do they reach a kind of 'saturation point' in this respect? Alternatively, are there aspects of media literacy that they are unlikely to learn until they are developmentally ready to do so?

4. In general – and predictably - there has been a great deal more research on television than on radio, or on new media. One key question here is whether aspects of media literacy *transfer* (or indeed can be *made* to transfer) between media. Does a literate TV viewer necessarily become a literate internet user? And indeed, is a sophisticated, critical reader of print also likely to be a sophisticated, critical reader of audio-visual media? These questions are particularly important given the multi-media approach of so much contemporary children's culture (for example, *Pokémon* or *Harry Potter*).

5. Likewise, we need to know more about how the three elements of media literacy inter-relate. How do children use the knowledge they acquire as 'consumers' of media in their experiences as producers? And, vice-versa, to what extent does the experience of media production contribute to them developing a more 'literate' approach as consumers?

6. We should also consider how to balance breadth and depth in this respect. For example, some individuals may be highly literate in one medium – perhaps as a result of greater experience - but much less literate in others. Does a media-saturated society necessarily require individuals who are competent to a given level in *all* media? Indeed, should individuals be expected to develop particular forms of media literacy even if they have no need or wish to do so?

7. We do not have easily available criteria by which we might measure or assess young people's media literacy. For example, we do not know if young people today are *more* media literate than young people twenty years ago, although such claims are often made. Nor do we have any broad agreement about how media literate they actually

need to be. Are young people *sufficiently* media literate to cope with the changing demands of contemporary society? And on what basis could such a judgment be made?

8. Assessing 'levels' of media literacy is highly problematic, particularly given the likely differences between competence and performance, and the unreliability of self-reporting. The use of more open-ended, visual methods seems to result in higher estimates of children's media literacy than the use of closed questions. Measuring media literacy (particularly in the area of 'understanding') solely via methods such as multiple-choice questionnaires may prove significantly less than reliable.

9. Furthermore, any such calibration is implicitly normative; and thus unavoidably raises questions about *whose* orientations towards media are to be socially validated. As we shall see in Section 4, different social groups may have very different motivations and practices in relation to media; and these may in turn reflect their different values, perspectives and traditions. This social diversity also needs to be taken into account in assessing media literacy.

10. The fact that children achieve a degree of media literacy relatively unaided should not sanction complacency about the media themselves. To some extent, the media do indeed teach the competencies that are required to access and interpret them – just as books teach children how to read (Meek, 1988). But there are some areas where the media do this less effectively – for example, in the case of badly-designed software tools or websites – and others where it is clearly not in their interests to do so – for example, in the case of more or less covert advertising or marketing activities.

Section 4

Barriers and enablers

As we have demonstrated in Section 3 of this review, there is ample evidence to show that children and young people develop media literacy relatively 'spontaneously'. This happens partly as a function of other developmental processes (cognitive, emotional and social); partly as a consequence of their growing experience of the real world; and partly as a result of their experience of the media themselves. In general, it would seem that young people are *already* quite media literate in many areas– or at least more media literate than many adults appear to assume.

However, as we have shown, age differences are a significant factor when it comes to identifying levels of media literacy. We would not expect a five-year-old to be as media literate as a fifteen-year-old – nor, arguably, do they need to be. Moreover, there are other social factors that play a part in the development of media literacy, and might be seen to impede or to enable it. It is to these factors that our attention now turns. In this section of the review, we begin by considering potential barriers to media literacy; and we then look at enablers, focusing particularly on broadly 'educational' processes and initiatives.

Barriers to media literacy are primarily barriers to *access* (and here we would include access to media production opportunities, as well as media 'consumption'). These barriers may be of many different kinds: economic, institutional, social, and personal. Barriers to *understanding* are essentially to do with the availability of information and of critical perspectives on the media. These are things that are provided by a range of broadly 'educational' agencies – not just schools, but also youth groups, parents, government and the media themselves. They are therefore considered later in this section of the review.

2.1 Barriers

The most widely acknowledged barrier to the development of media literacy is the so-called 'digital divide'. This is often seen primarily as a matter of *access*. Factors such as social class and gender are key determinants of people's access to new media technologies, and of the quality of that access (for example, as defined in terms of the specification of the equipment, and the ease with which people are able to use it in different locations). Factors such as disability and personal dispositions towards technology also play a role here. However, it is important to recognise that the digital divide is more than simply a question of access to technology: it is also a matter of the skills and competencies (the media literacy) that are required to use that technology effectively, and to secure the maximum benefit from it. People who have less access to technology have fewer opportunities to develop these skills and competencies; and hence are less likely to seek out opportunities to use it in the first place. The opposite will be true for those who enjoy high levels of access; and so there is a danger that – despite the falling price of the technology – there will be a polarisation in this respect between the media 'haves' and 'have nots'.

The digital divide: social class

As we have noted, there are few apparent barriers to access to terrestrial analogue television and radio; and even with multichannel television, the distribution of these technologies appears to depend as much upon taste and personal disposition as upon available economic resources (except for the very least well-off sections of society). By contrast, there is considerable concern about inequalities in access to the internet.

The level, nature and quality of internet access are dependent on a range of factors. The most obvious, and widely researched, of these is socio-economic status. In Livingstone and Bober's (2004a) study, 88% of middle class children had home internet access compared with 61% of working class children. In relation to the *quality* of access at home (defined in terms of factors including the age and specification of computer and connection to dial-up or broadband), socio-economic status is again significant. Middle class homes average 1.9 computers per household compared with 1.3 in working class homes. Although broadband access is steadily growing, Livingstone and Bober (2004a) report that 38% of middle class households compared with 26% of working class children have a home broadband connection. This has implications in terms of frequency of use: those who pay for dial-up access by the minute are more likely to be weekly users, while those with broadband are most likely to be daily users. In terms of frequency of use in any location, more middle class children (44%) than working class children (37%) are engaged on a daily basis. There are also more non-users (5%) in this group than in the middle class group (2%). (There are similar disparities in access between middle-class and working-class children in other countries: see, for example, Rideout et al., 2003, and Center for Media Research, 2004, on the US; Statistics Canada, 2004, on Canada; and Colman, 2003, on Australia.)

However, social class is not simply a matter of disposable income. Facer et al. (2003) found that social and cultural capital had a significant effect on how families come to value and work with the computer. In this context, cultural capital refers to the understandings and competencies that are needed to take best advantage of the technology: for example, middle-class families were able to 'read' the educational significance of the computer, and to exploit its potential, in more sophisticated ways. Social capital is primarily a matter of access to social networks of friends and acquaintances; and here, families with access to social networks that already possess expertise in computing will obviously be in a stronger position to realise the benefits of technology than those without. In this sense, it could be argued that different levels of access to ICTs are not just produced by, but are also likely to reinforce, existing social inequalities. As Livingstone and Bober (2004a) point out, those who enjoy greater online access are 'the usual suspects', households with more economic, educational and cultural advantages; and they are also the ones who will inevitably benefit from these greater resources both on- and off-line.

The digital divide: other social factors

In addition to social class, other social factors may also play a role here. The significance of gender seems to be rather less than is sometimes assumed. Livingstone and Bober (2004a) found that gender made little difference to access in any location. In their research, it appeared that parents did not discriminate, and provided equal access for both sons and daughters. Likewise, gender does not appear to be a factor in providing a broadband connection. However, in terms of frequency of use in any

location, there are more boys (43%) than girls (38%) engaged on a daily basis. Boys rated their skills more highly than girls did; 35% consider themselves 'advanced' compared with 28%, suggesting either higher levels of skill or of confidence - although interestingly, in focus groups, boys and girls said their levels of expertise were the same. By contrast, in relation to schools, Holloway and Valentine (2003) found that the teaching practices in two of their case study schools served to marginalize girls' use of computers, owing to a strong 'macho' emphasis on technology and a sanctioning by teachers of various forms of harassment on the part of boys. However, this was being (inadvertently) challenged in a third school by means of a focus on the communicative opportunities of ICTs, which were seen as more attractive for girls.

Rather less is known about other potential social barriers to access. Livingstone and Bober (2004a) found that ethnicity did not play a large role in determining internet access: 72% from a 'non-white' background have used the internet on a computer at home, while 90% of such children have used it at school. However, there is a need here for more detailed research among different ethnic groups, where particular moral or religious values or orientations towards education might serve to promote or to restrict children's access. Research is also needed into the particular position of children for whom English is not their first language.

Another area in need of research relates to disability. A study for BECTA (2002a) found that there is a wide range of disabling conditions that require specific approaches to ICT design and provision. Some important barriers include the fact that hardware and software is generally not specialised or adaptable, a lack of awareness (for example on the part of schools or software designers), and a lack of targeted resources. This report found that efforts to include disabled users were often diluted as a result of the segmentation of services and a lack of coherence among the different providers.

Blocking and filtering

One particular barrier to access that is in need of further research concerns the role of internet filtering, both in the home and at school. Schools certainly see the need for filtering, although this is more of an issue in primary than in secondary schools (Research Machines, 1998, 2000). The use of filters for blocking 'spam' and other unwanted commercial solicitations via the internet could be seen to remove an element that, for many, is becoming a significant barrier to use: research suggests that the kind of material may prove a significant disincentive to young people using the internet (Grant, 2004).

However, critics of filters (e.g. Lawson and Comber, 2000) suggest that they are often inefficient, and present unnecessary or unintended obstacles to users. There are many anecdotal descriptions of the difficulties children encounter in attempting to search the internet, as a result of schools' crude or over-enthusiastic attempts to prevent them from accessing pornography or other potentially 'harmful' material. Over-sensitive filtering systems may block access to useful sites or e-mail communications on the basis of the inclusion of specific 'taboo' words (or even parts of words) which may be entirely innocuous in many contexts. The Parents' Information Network (2000) evaluated a range of filtering packages for the DfES, and concluded that, while some packages were more effective than others, none worked as effectively as advertised. They conclude that the use of such programs is not a permanent or one-size-fits-all solution, and that any such

attempt at regulation should also include agreements with children about online times, unsuitable content and unsafe online contacts; and that children would also need strategies to cope when the filtering software does not work or is not present.

Nevertheless, there is little doubt that exaggerated fears about the dangers of the internet – often stoked up by sensational stories in the press – do lead parents and teachers to restrict children's access (Livingstone and Bober, 2004a). The key question here, of course, is to do with the level of protection that is necessary: one person's realistic fear may be another person's wild paranoia. In terms of media literacy, this raises the question of how we balance the awareness of risk (see Section 1.1.7 above) with the need to ensure quality of access.

Individual motivations

Finally, it is important to take account of individual dispositions and motivations. In Ofcom's recent research, the main reasons given by adults for not connecting to the internet were to do with individual interest (people feeling they had no need to connect, or no interest in internet content) rather than to do with cost factors (Ofcom, 2004). Likewise, Livingstone and Bober (2004a) found that while many children explained their own low or non-use of the internet mainly in terms of lack of access (47%), 25% simply said that they were not interested in using it. Similarly, Facer et al. (2001) found that low and non-users of computers were discouraged not only by difficulties in accessing computers, but also by their perceived lack of relevance to these children's daily lives. Holloway and Valentine (2003) have concluded that adults need to promote technologies in ways that relate to the social context of children's everyday lives: activities that connect to children's off-line interests and concerns can contribute to helping ICT emerge as a 'cool tool'.

Nevertheless, there is certainly room for debate about whether the use of the internet (or indeed, of any other medium) should be seen as some form of social imperative. It is important to emphasise that media use is a very diverse phenomenon: people tune in or log on for a variety of different reasons, which relate both to their own motivations and to other possibilities that are available at the time. A great deal of media use is not characterised by high levels of engagement or investment: on the contrary, it reflects the need for diversion, distraction and entertainment (Rubin, 1994; van Evra, 2004). People may not feel they *need* to develop media literacy in areas that are unrelated to their interests and purposes. Thus, it could be argued that the model of the critically engaged, media literate viewer (or web-user) may be appropriate in some settings, but should not necessarily be held up as a universal norm.

Media literacy as cultural capital

As we have implied, the question of access is not just to do with equipment, but with the knowledge and skills that are required to use that equipment effectively. The so-called digital divide is not simply about the fact that middle-class people are more likely to own computers, or to own better computers, or to have better internet access, than working-class people. It is also about what they know about computers, about what they are able to do with them, and how they make use of what they find. Clearly, if children have better access to technology, they are more likely to use it; and the more they use it, the more likely they are to get better at using it, and hence to realise its potential benefits. But the

relation between access, use and understanding is not necessarily quite so straightforward.

Thus, research on children's understanding of television suggests that there are quite significant differences between middle-class and working-class children, not so much in their access to the medium, or the amount they watch, or even the particular programmes they watch, but in how they interpret them. For example, Buckingham (1993a) found that middle-class children – and particularly middle-class boys - were more likely to make critical judgements about the reality (or unreality) of television. Both quantitatively and qualitatively, their judgments were more complex and sophisticated than those of the majority of their working-class counterparts. To some extent, this was a function of the research itself. The middle-class children were more likely to perceive the interview context in 'educational' terms, and to frame their responses accordingly. By contrast, many of the working-class children tended to use the invitation to talk about television as an opportunity to stake out their own tastes and to celebrate their own pleasures for the benefit of the peer group. While the middle-class children directed much of their talk towards the interviewer, and tended to defer to the interviewer's power, this was much less true of the working-class children, for whom the interviewer occasionally appeared to be little more than an irrelevance.

While the critical discourse of the middle-class children was not explicitly phrased in class terms, there is arguably a thin line between contempt for popular television and contempt for its audience. As the French sociologist Pierre Bourdieu (1984) suggests, critical discourse represents a valuable form of cultural capital, and a tangible demonstration of social distinction. The process of 'becoming critical' may be part of the way in which middle-class children come to distinguish themselves from the 'others', and thereby actively socialise themselves into class membership. Yet a great deal may be lost - or at least disavowed - in this process. Critical discourses about the media may embody a form of intellectual cynicism, and a sense of superiority to 'other people'. They may result in a superficial irony or indeed a contempt for popular pleasures that is merely complacent. Perhaps particularly for boys, for whom the expression of pleasure appears much more risky and problematic, the discourse of critical judgment seems to offer the security of appearing to exercise absolute rational control (see also Buckingham, 1993b).

As this implies, these findings should not be seen to support any simplistic conclusions about the levels of media literacy in different social classes. Rather, it would seem that these critical discourses serve particular social functions for these children, which are at least partly to do with establishing their own class position and social status. They provide a powerful means whereby middle-class children can demonstrate their own critical authority, and thereby distinguish themselves from those invisible 'others' - the 'mass' audience - who are, by implication, seen to be more at risk of suffering the harmful effects of television.

More broadly, this points to the need for a *social* theory of media literacy. It suggests that making sense of the media is not simply a matter of what goes on inside children's heads. On the contrary, it is an interpersonal phenomenon, in which social interests and identities are unavoidably at stake.

2.2 Enablers

Under this heading, we consider the contribution of a range of agencies that can be seen to promote or encourage children's media literacy. Most of the work we discuss here falls under the headings of *understand* and *create*: the focus is primarily on developing children's critical media literacy, and (to a somewhat lesser extent) their involvement in media production. Our focus, therefore, is on broadly educational processes that complement the more self-directed or 'spontaneous' learning that children engage in on their own behalf (described in Section 3). Formal educational institutions are only part of the picture here, however: we also need to consider 'informal' settings such as those of youth and community-based media projects, as well as the role of parents in the home. It is with the latter that our review here begins.

Parents

Parents and television

There is a fairly extensive body of research about parents' mediation of television in the home. It is helpful to distinguish here between two main types of mediation: regulation (that is, rules about the amount or type of viewing); and 'active' co-viewing and discussion. It is the latter that primarily concern us here.

There is little doubt among researchers about the value of such mediation. Broadly speaking, it seems that co-viewing and discussion with parents can reinforce some 'positive' effects of television, for instance in relation to children's learning of 'family values' (Brown and Bryant, 1990). Similarly, parental encouragement to view, and co-viewing, also appears to promote children's learning from educational programmes such as *Sesame Street* (Fisch and Truglio, 2001). On the other hand, parental involvement may also promote a more critical response to areas such as television violence (van der Voort, 1986).

Messaris (1986) found that parents (or at least mothers) played an important positive role in young children's learning from television, in three main respects. Firstly, at a very young age, they helped children to make distinctions between different types of programmes, and between television and reality. Secondly, they helped children to evaluate the accuracy of television representations, and hence to adjust unrealistic expectations about the real world that might have arisen from television viewing. Thirdly, parents could provide 'background' information when children were confronted with unfamiliar material, particularly relating to aspects of adult life that children could not have experienced themselves.

Buckingham (1996), in research conducted for the BSC, found that parents could play a significant role in helping children to deal with upsetting or disturbing emotional responses. However, parents also noted that children's responses were often hard to predict; and that their ability to reassure children was more limited when it came to factual material (such as news), which it was impossible to dismiss as merely a made-up story. More recent research for the BSC and others by Buckingham and Bragg (2004) suggests that some children valued discussions with parents about sexual content in the media; although this was often vitiated by a strong sense of mutual embarrassment. Many parents attempted to play a role in countering what they saw as stereotypical or morally dubious 'messages'; but children often resisted parents' attempts to intervene,

on the grounds that they were old-fashioned or patronising. Most parents were inclined to avoid an authoritarian approach to regulation, and preferred to negotiate and discuss with their children over what they should see; although in some instances, this reliance on discussion and negotiation seemed to make their job more difficult, rather than easier.

However, despite general agreement about the value of parental intervention, there is much less evidence that it happens in practice (Rideout and Foehr, 2003). It may simply be that parents are too busy to intervene, or that expert warnings fail to resonate with them (van Evra, 2004). Parents are also much less likely to regulate or intervene in their children's viewing as they grow older; and, as we have noted, many seem keen to provide their children with privatised access to media, particularly as they enter the teenage years. In the US and Canada in particular, there are several published media literacy 'kits' and websites offering advice to parents, produced by advocacy groups with some quite diverse motivations; but there is no firm evidence as to the use or effectiveness of such material (van Evra, 2004).

Parents and the internet

In the case of the internet, the most significant question here is more about the extent of parents' expertise than about children's. Facer et al. (2003) concluded that there was a significant 'digital divide', which derived from parents' work and educational experiences, and that this had sizeable implications in terms of parents' ability to support their children's use of ICTs at home. Even so, when they asked parents with access at home if they (or another parent) understood the technology well enough to help their child get the most out of it, 64% said that they did. In terms of finding information, which these authors see as the key skill associated with internet use, a large majority of parents (77%) expressed confidence. Where parents' expertise was seen to be lacking, children's social networks, friends, and parents' contacts were particularly significant. Overall, these authors conclude that to effectively manage, guide and regulate children's use, parents need more guidance in developing their own media literacy or internet skills.

On the more negative side, the UKCGO project (Livingstone and Bober 2004a) found that parents' anxiety may lead to over-restrictive practices impacting on children's access; including limiting time spent on the internet; sitting with the child at the computer (31%), overseeing their activities; and banning particular activities such as visiting chat rooms. Parents also used technical solutions such as filtering software, which could prove less than effective (see above). Underpinning these kinds of restrictions is the finding that 53% of parents consider that the internet has made children's exposure to pornography much more likely. As Livingstone and Bober (2004b) point out, limitations on children's use can undermine their exploration of the internet's potential. As with the research on television, they find that young people often resent regulation, particularly as they get older, and expect more trust and respect. (This area of parental regulation is also being addressed in the parallel review on adults' media literacy.)

Parenting: general points

Parents' strategies in this respect clearly reflect different beliefs about child-rearing, and the characteristic communication styles within families. There is a somewhat value-laden

distinction frequently made in such research between 'socio-oriented' and 'concept-oriented' families (e.g. Moore and Moschis, 1981). The former are seen to be more authoritarian, while the latter favour rational discussion and debate (and may be somewhat less consensual as a result). Generally speaking, parenting styles in the UK would seem to be moving towards the latter approach – what Buckingham and Bragg (2004) call a 'pedagogic' model. As Livingstone and Bober (2004b) suggest, this may make regulation and mediation more difficult – particularly in a situation (as with new media) where parents may know much less than their children, and where much of what their children do may be difficult to monitor or to access. The emphasis on media literacy in current debates may thus pose significant dilemmas for parents, who may not only be unwilling but also unable to intervene in their children's use of the media in an authoritative way.

One particular methodological difficulty here is that parents are inclined to offer researchers somewhat idealised descriptions of their practice, or 'socially desirable' responses to interview questionnaires. Parents with a higher level of education tend to report that they are more likely to intervene in their children's media use, for example in relation to advertising (Rossiter and Robertson, 1974), although there is little evidence about whether they actually do so in practice. There are often significant discrepancies between what parents say about media use in the home and what children say (Buckingham, 1993a). Children may also prove less inclined to learn from the explicit rules parents lay down, or from their active interventions, than from their own observations of their parents' behaviour, which may 'model' a rather different form of engagement with media (see Buckingham and Bragg, 2004: Chapter 9). This suggests that it may be hard to identify what actually happens simply on the basis of interviews or questionnaires, and that there is a need for more observational studies, even though these are significantly more labour-intensive. Research on 'family literacy' (e.g. Wasik, 2004) provides one model of this more ethnographic approach; although paradoxically, families' use of media has been quite neglected in this field.

Formal Education

Media in schools

Most schools possess television and video recording equipment, and have done so for many years. There is also a considerable amount of educational programming (both TV and radio) provided by terrestrial broadcasters: for example, Channel 4 currently broadcasts more than 400 hours of educational programming per year. However, although it is somewhat beyond the remit of this review, we should add that we found great difficulty in obtaining recent information about schools' uses of educational television: there has been very little independent academic research in the field, and evaluations conducted by the broadcasters themselves do not seem to be available in the public domain. This is a striking absence, particularly given concern about possible cuts in the provision of schools broadcasting (see Moss, 2002). Likewise, although there is considerable interest in the educational potential of interactive television (for example, in terms of individualized learning), little empirical research has taken place in schools (Luckin and du Boulay, 2001). Until relatively recently, copyright restrictions have also made it difficult for teachers to use general service broadcasts in lessons.

On the other hand, as we noted above, the school is generally seen as the key institution in terms of promoting access to new media. Almost all UK schools are now connected to

the internet, and a large percentage of children - 92% in Livingstone and Bober's (2004a) research - report having used the internet at school. At the same time, an increasing number of schools provide access to specialist digital production equipment, in particular digital video editing equipment, which in some cases is making a radical difference to media education (see Section 3.2.4 below; and Kirwan et al., 2003).

However, as we have noted, access is not simply a matter of the availability of equipment. It is also a matter of the social and pedagogic contexts in which it is situated. We need to consider the *quality* of access, for example in terms of when and where, and what kinds of access are promoted. Holloway and Valentine (2003) point to some of the differences between schools in this respect, which are not only a matter of the levels of available hardware but also of the ways that ICTs are used in the curriculum, and the quantity and quality of access time that children have outside timetabled lessons. Several schools severely restrict children's access to the internet, or only favour pupils who are already keen on the technology; and this may further reinforce inequalities between children who have access at home and those who do not. This is an area that is certainly in need of further research.

We also need to consider teacher training and expertise, since – as Kirwan et al. (2003) point out - the capacities of the new technologies often exceed teachers' abilities to exploit them. Likewise, although the UK government's National Grid for Learning was established as a way of providing universal access to ICTs in school and individualized learning programmes in both home and school, questions have been raised about the quality of the materials on the Grid, and the potential mis-match between home and school uses of ICTs (Lankshear and Knobel, 2002).

Finally, it is important to distinguish here between teaching *through* the media and teaching *about* the media: *educational media* should not be confused with *media education*. Thus, television or the internet are frequently used in schools as means of teaching particular subjects or curriculum areas. Of course, these educational media also provide representations of the world; and, for that reason, media educators have often sought to challenge the instrumental use of media as 'teaching aids' (Buckingham, 2003a). This emphasis is particularly important in relation to the contemporary enthusiasm for new technologies in education, where media are frequently seen as neutral means of delivering 'information': even the ICT curriculum in schools seems to focus primarily on 'functional' literacy (the manipulation of hardware and software tools) rather than on critical questions about how to evaluate information. It is these latter questions that are the primary focus of *media education*.

Media education: defining the field

By comparison with many other countries, media education has a relatively long history in the UK. In England and Wales, there have been specialist publicly-examined media courses in secondary schools since the late 1960s, and provision at AS and A2 levels is currently expanding at a remarkable rate; although it should be noted that such courses are followed by only around 4-5% of the age cohort. There is some provision for media education in the National Curriculum for English at Key Stage 3 (11-14), and English courses at Key Stage 4 (14-16) typically contain a media component. There is also (somewhat marginal) mention of the media in the National Curriculum specifications for areas such as Citizenship, Modern Languages and History; although there is very little

emphasis on media education in the relevant curriculum documents for primary schools. Formal media courses also exist in Northern Ireland (about a fifth of schools offer GCSE Media Studies, and there is growing support for media education from the CCEA); and in Scotland, media education forms part of the 5-14 Art and Design curriculum, as well as leading to specialist post-16 exam courses. Researchers and practitioners around the world frequently look to the UK for models of good practice in this field. (Recent reviews of provision in media education may be found in Kirwan et al. (2003) and Grahame and Simons (2004). A review of media education worldwide, undertaken for UNESCO, is reported in Buckingham and Domaille (2003).)

A full discussion of the aims and methods of media education is beyond the scope of this review. However, it is important to distinguish between the approach typically adopted in the UK and that which is prevalent in the USA (where media education has a much shorter and more uneven history). Some (though by no means all) practitioners in the US conceive of media education as a form of preventative or protective measure: it is primarily seen as a means of reducing or counteracting the impact of what are seen as 'harmful' media messages, for example relating to violence, drugs and alcohol, and sex. As this implies, much of the emphasis appears to be on issues of health and personal morality. This approach is generally characteristic of countries where media education is still at a relatively early stage of development. (For a discussion of the US context, see Tyner, 1998 and Brown, 1991)

By contrast, the approach in the UK is based more on the notion of *cultural understanding*. The origins of media education lie in English teaching; and it is possible to find instances of English teaching that address aspects of the media as far back as the 1930s (Leavis and Thompson, 1933). Furthermore, the majority of media teachers are initially trained as English teachers, and many teach in both areas. As a result, many of the practices developed in media education reflect existing approaches to the teaching of literary texts, particularly that of close textual analysis, and the analysis of representation. However, most media courses combine this with a more sociological emphasis on the study of the media industries, and of media audiences. While there are a few media teachers who continue to see their role as one of 'inoculating' students against media influence, most tend to adopt a less judgmental approach, emphasising pleasure and appreciation as a necessary complement to critical analysis. Furthermore, as we shall see below, media education now increasingly involves an element of media production, in which students will typically create small-scale media products and reflect on the production process. In this respect, media education addresses both the 'understand' and 'create' dimensions of Ofcom's definition of media literacy. (For a comprehensive account of the aims and methods of media education, and a review of classroom-based research, see Buckingham, 2003a.)

There is a substantial and longstanding literature covering aspects of media education, although it has mostly taken the form of a delineation of theoretical principles and areas of study, sometimes elaborated into more detailed recommendations for classroom strategies. There is rather less by way of detailed evidence about media education in practice. Books on media education frequently include illustrative anecdotes or brief case studies of particular approaches to teaching, but academic research in the field has been a relatively recent development (Buckingham (1990) is the first major publication of this kind). Over the past ten years, however, a growing body of research has emerged, much of it conducted by teachers themselves, either in the context of doctoral studies or in collaboration with academics (see, for example, Bragg, 2000; Buckingham and

Sefton-Green, 1994; Buckingham et al, 1995; Burn, 2000; Burn et al., 2001; Jeong, 2001; Richards, 1998; Sefton-Green, 1998). Here again, this is an area in which the UK has very much led the way: empirical, classroom-based research on media education in other countries is much less well developed (though see Buckingham, 1998).

Even so, much of this work is comparatively small-scale: it is typically based on in-depth case study research in a few classrooms, mostly with older students following examined Media Studies courses. With a few exceptions (Emerson, 1993; Marsh, in press), there has been very little research with younger children. There is almost no large-scale research, and no quantitative or longitudinal studies. In recent years, there have been a few more broadly-focused projects which provide findings across different European countries (Buckingham, 2001); and across different schools (Burn et al., 2001; Reid et al., 2002; Hart and Hicks, 2002). Furthermore, while some studies cover a range of media forms (Buckingham et al., 1995; Sefton-Green and Sinker, 2000), most focus on one specific medium. Of the media that are covered, the major concentration has been on video production, film and television; while some other media, such as radio or web authoring, have yet to be explored.

Nevertheless, on the basis of these studies, and of other publications about media education, it is possible to reach some fairly firm conclusions about what 'works' in classroom terms, and what is generally seen to be 'good practice'. To this extent, our review will summarise findings that are shared across most recent accounts of the field. These include: the review of provision undertaken for the ITC and BSC by Kirwan et al. (2003); Buckingham's overview of aims, methods and practice in media education (Buckingham, 2003a); the review of media education in secondary schools undertaken by Grahame and Simons (2004) for the QCA; and other reviews, such as the work of Burn and Leach (2003) on digital moving image production, mostly in relation to the English and Media Studies curriculum. The account in the following sections summarises some of the key issues raised by academic research in this field, as follows: teaching critical perspectives; student production; curriculum time and design; and evaluation and assessment.

Teaching critical perspectives

Media education is centrally concerned with developing a critical perspective on the media; but it is important to emphasise that 'criticism' is by no means synonymous with mere condemnation. Research on the teaching of 'critical' perspectives in media education has tended to confirm some of the points raised earlier in this review about the dangers of an unduly rationalistic, 'counter-propagandist' approach (see Section 1.2.6 above). For example, a classroom-based study by Buckingham et al. (1990) found that most students were quite prepared to 'play along' with teachers' critical approaches to analysing television advertising, but that much of this was little more than an exercise in 'guessing what's in teacher's mind': analysis became a mechanical classroom routine, and much of the pleasure afforded by advertising tended to disappear from view.

Many researchers have argued that such 'critical' approaches tend to be based on an oversimplified view of young people's engagements with media. Thus, Turnbull (1998) found that teachers' feminist criticisms of romantic fiction and soap operas failed to address the complex ways in which these genres were actually used by their young female students; Sefton-Green (1990) found that classroom discussions of ethnic

representations in the media tended to be reduced to a kind of ‘language game’ which failed to do justice to the subtlety of the students’ own responses; and Jeong (2001) found that teaching about ‘images of women’ in the media seemed to be based on a simplistic view of audiences as victims of media misrepresentations, and that the discussion of students’ (and teachers’) personal investments in the media was marginalised as a result.

To some extent, the difficulty here arises from the gap between teachers’ critical perspectives and the changing experiences of students. Thus, Funge (1998) found that there was a considerable gap between her students' perceptions of gender in the media and the feminist theories on which much media education is based. She argues that '1970s feminism', with its emphasis on ideological deconstruction, simply fails to connect with contemporary gender politics – as embodied, for example, in the notion of 'girl power'. Likewise, Cohen (1998) found that simplistic notions of ‘positive’ and ‘negative’ images were highly problematic when teaching about the representation of ‘race’ in the media. He argues that such ideas are based on a rationalistic approach, which regards racism as merely a result of irrationality or misinformation, and that they fail to address the complex ways in which such representations are interpreted and used.

On the other hand, research does point to the considerable benefits of students acquiring a critical ‘metalanguage’ with which to analyse their own responses to media. For example, Buckingham and Sefton-Green (1994: Chapter 9) undertook a close analysis of one student’s critical writing, tracing how he gradually developed the ability to generalise about the texts he was discussing, to support his assertions with evidence, and to sustain more abstract arguments. In this case, he was able not merely to apply or illustrate theories or concepts, but also to make reflexive judgments about them (for example, by questioning the notion of 'stereotyping'). This gradual mastery of the 'correct' terminology and linguistic structures of critical writing could be seen as a form of socialisation into the subject discipline; but it also reflects a developing control over one’s own thought processes, and a growing conceptual sophistication. Nevertheless, research clearly shows that it is most productive to relate critical analysis to students’ own concerns, tastes, and identities rather than engaging in the more abstract analyses of ideology that have traditionally been prevalent in media teaching (Bragg, 2002).

Student production

The emphasis on media production in recent years partly reflects this growing recognition of the importance of more active, open-ended pedagogic approaches. It is widely accepted by media educators that the experience of media production is valuable both in its own right, as a means of promoting self-expression and communication skills, and also as a way of developing a more in-depth critical understanding. It is seen to provide a more participatory, ‘hands-on’ approach to pedagogy, which students generally find more motivating than approaches based solely on discussion and writing. Media literacy, it is often argued, should necessarily entail ‘writing’ as well as ‘reading’ the media (Buckingham, 2003a); and most specialist media courses now contain a substantial component of practical production (Grahame and Simons, 2004). Several research studies have pointed to the benefits of student production work, particularly in terms of enabling students to explore and reflect upon their emotional investments in the media, and issues of identity formation more broadly (Bragg, 2001; de Block et al, 2004; Willett, 2003). Media production is seen by some to provide a ‘safe space’, in which

students can explore media-related fantasies and address some of the complexities of their investments in media images (Buckingham and Sefton-Green, 1994). Several studies point to the importance of students using familiar media genres, which often serve as the basis for parodic inversions or 'deconstructions' of media codes and conventions (Buckingham et al., 1995; Grace and Tobin, 1998).

The advent of digital authoring software in recent years has enabled a significant increase in the amount and (more arguably, perhaps) the quality of production work being undertaken in schools. Several studies show the value of digital editing software in terms of the opportunities it gives learners to revise their work (Buckingham et al., 1995; Burn and Reed, 1999; Burn, 2000; Burn et al., 2001). Further benefits are identified in the BECTA digital video pilot evaluation (Reid et al., 2002): that DV editing software provides constant feedback for learners; that it allows the integration of different expressive forms and their related media (speech, music, graphic design, moving image, text); and that it allows a wider variety of publication and distribution formats and contexts, and therefore a potentially wider range of audiences. Research undertaken by a group of teachers in specialist media arts colleges in the UK (Burn et al., 2001) found that the use of digital video editing equipment has considerable benefits for students, including an improved understanding of the language of the moving image, more purposeful collaborative group creation of video work, and a specific kind of pleasure in the manipulation of video material. Further evidence can be found in a series of action research projects funded by the DFES and co-ordinated by the British Film Institute, looking at the use of digital editing software (see British Film Institute, 2004). These offer several concrete instances of the benefits of access to such equipment, in one case, for instance, for profoundly disabled secondary pupils. Other studies also point to the benefit for learners (in each case, in primary schools) with access to computer animation software. While one of these (Parker and Sefton-Green, 2000) points to the limitations of 'edutainment' software, the other two (Burn and Parker, 2001, 2002) demonstrate the value of the package *The Complete Animator* in allowing children to work at a detailed level in constructing frame-based animation.

Other studies explore specific approaches to the teaching of digital video production. Burn and Reed (1999) report on the value of modelling editing processes informally on whiteboards; while Sweetlove (2001) found that peer tutoring was a valuable way to teach the use of iMovie to eleven-year-olds. Several small action research projects coordinated by the British Film Institute over the past four years have found that digital video could be valuable in relation to the pedagogies of other school subjects closely associated with media education: English and the teaching of grammar; drama and self-representation in a special school; and special needs education in a mainstream secondary school (British Film Institute, 2004). Finally, Burn and Parker (2003) found that collaboration between teachers of Art, English, Media, and Music was productive, since it could attend to all aspects of the making of an animation with ten-year-old students in a UK primary school. This project also found the benefit for children in working with media professionals (Burn and Parker, 2003).

However, this is not to imply that production work is unproblematic. Research has pointed to some of the difficulties of organising group production activities, particularly where students have different levels of prior expertise (Jeong, 2001). Male students may tend to dominate the equipment, leaving female students to perform in front of the camera (Buckingham et al., 1995). In many instances, a lack of equipment – particularly of editing machines - clearly inhibits work. The evaluation of the BECTA DV Pilot project

found, unsurprisingly, that teachers trying to give classes an experience of video editing with one iMac computer suffered considerable difficulty, compensating for inadequate equipment only through ingenious classroom management strategies (Reid et al., 2002). Rather differently, the same study found that relatively inexpensive resources - angle-poise lamps, tripods, cheap microphones - could considerably improve the quality of pupils' work. The problem here was one of teachers' technical expertise, rather than financial resources; and behind this problem lay the lack of specialist training for media teachers in the UK.

Two studies also identify the lack of any existing software to meet the need established by such research. (Parker and Sefton-Green, 2000) identify aspects of primary school children's understanding of animated film which cannot be developed with any available software, and posit possible designs. Willett (in press a) identifies aspects of children's ability to design computer games that are inhibited by the lack of software to produce an interactive game.

A key issue for debate here concerns the balance between instruction and discovery, particularly in the context of production work. Some researchers advocate a looser, more exploratory approach, while others find in favour of a more structured introduction to new concepts and skills. De Block et al. (2004) argue, for instance, that too great an emphasis on structured, cognitively-based work in media production can be disempowering for children. On the other hand, Reid et al. (2002) found that work that was too unconstrained led to poorer quality video production, whereas developing a more explicit and systematic understanding of the language of the moving image produced better work. However, this difference of emphasis should not be overstated. There is broad agreement that production work should build on children's existing media knowledge, that it should develop a more critical awareness of media texts, and that it should provide structured opportunities for children to learn how to use media technologies.

Curriculum time and design

It is often argued that the time allocated to media education in UK schools is patchy and insufficient. However, there is little by way of empirical findings that demonstrate specific benefits of devoting more time than is usually the case, and designing a curriculum which develops a sequential and coherent experience of media education. Nevertheless, four general points can be made in this respect. Firstly, there is some evidence that English teachers who make the most of the limited but mandatory media element in the English National Curriculum secure specific benefits in terms of students' achievement, such as a deeper conceptual grasp of narrative and visual imagery (Parker, 1999), grammar (Burn, 2003a), and even poetry (Burn, 2003b). Secondly, it is clear that programmes of work which integrate analytical work with forms of creative production produce more secure conceptual learning as well as greater expressive opportunities for students (Buckingham and Sefton-Green, 1994; Buckingham et al., 1995; Hart and Hicks, 2002). Thirdly, it is also fairly well established that curriculum design needs to strike a balance between making room for young people's extensive experience of media culture, and the sensitive introduction of new texts, ideas and techniques (Buckingham, 2003a). Fourthly, recent work points to the benefits of sustained programmes of media literacy at Key Stage 3 being pioneered in media specialist arts

colleges (Poon, 2004). Kirwan et al. (2003) also point to the specialist media arts colleges as a valuable site of experiment and innovation.

On the other hand, efforts in media education can be hindered by a range of factors. These include: restrictive models of literacy in school curricula (Beavis, 2001; Burn and Parker, 2002; Parker, 1999); insufficient attention to popular culture in school curricula (Buckingham and Sefton-Green, 1994; Buckingham et al., 1995); and the lack of specific attention to media education in general, specifically in English curricula (Hart and Hicks, 2002). Perhaps the most often cited issue here is the lack of sustained training for teachers. As Kirwan et al. (2003) and Grahame and Simons (2004) have shown, a high proportion of specialist media teachers have little or no training in the area, even when they are teaching to A-level standard. Hart and Hicks (2002) identify the overemphasis in media teaching on activities of analysis and interpretation, which they argue is largely due to teachers' unfamiliarity with technologies and practices of production. Reid et al. (2002) emphasise the direct relation between the quality of video production by pupils and the ability of the teacher to teach aspects of moving image 'language' explicitly. These findings clearly point to the lack of specialist training for teachers as a key obstacle to effective practice. This is a situation that would be most unlikely to be countenanced in any other area of the curriculum, particularly in relation to examination courses.

Evaluation and assessment

Grand claims are often made for the value of media education, but it is fair to conclude that relatively little is known about its *effectiveness*. Some studies claim that using media-based approaches can lead to significant advances in print literacy. Parker (1999), for example, found an improvement in levels of print literacy (as measured by National Curriculum tests) after the parallel experience of literature and moving image text (although the methodology of this study is questionable). Beavis (2001) found explicit classroom attention to computer games a valuable ingredient in the teaching of narrative writing to secondary school children, especially boys. McClay (2002) also found that games can influence narrative writing, concluding that language arts teachers (in this case in Canada) need to work with an expanded model of literacy if they are to fully exploit students' creative potential. Burn (2003a, b) found that moving image production complements and expands the creative and communicative possibilities of poetry writing with secondary school students in the UK. Yet while these studies provide evidence about how media work can increase students' motivation, they provide little conclusive proof of its value in terms of developing levels of print literacy.

Of course, it is possible to point to examination results for specialist Media Studies courses – which, despite claims that the subject is merely a 'soft option', are actually significantly poorer than for more traditional curriculum subjects (Grahame and Simons, 2004). Yet assessment is generally seen to be a problematic area in media education; and the assessment of young people's practical production work is particularly problematic. Two main reasons have been identified here: the unsuitability of language-based examinations to evaluate work in visual media; and the inconsistent criteria that tend to be employed, despite an apparent clarity on the part of examination boards. Buckingham, Fraser and Sefton-Green (2000) found that the emphasis on writing as the main mode for students' evaluation of their own work in A-level Media Studies was often restrictive, and failed to do justice to the work; while Buckingham et al. (1995) found a

similar problem with written evaluation more generally. In the context of the informal sector, Harvey et al. (2002) found that video work produced by young people in community arts projects was almost impossible to evaluate because of the lack of any consensus about how to judge it; and the study called for the development of an 'evaluative matrix' to help educators judge what was successful or otherwise.

Gaps in the research

The findings of such classroom-based case studies are often tentative and suggestive, rather than robust and conclusive. This is, by and large, not the fault of researchers, but the result of very limited funding for media education research in schools in the UK: to date, there have been no large-scale funded projects in this field. Clearly, larger-scale studies are required to test these tentative findings, and to explore areas as yet undocumented.

Some of the most obvious gaps here relate to particular areas of content. For example, there is no work on radio and very little on computer games, even though these are areas that many teachers cover. More significantly, there is no research that might provide us with a model of learning progression – that is, specifying how children's understanding develops through their encounters with media education at successive stages of education. Existing models, such as the British Film Institute's model of 'cineliteracy' (BFI, 2000) need to be revisited in the light of empirical research; and anecdotal evidence would suggest that younger children may be capable of much more sophisticated work than is often assumed (Marsh and Millard, 2000). Such a model would help teachers to know how they might intervene in order to move particular students onwards in their understanding; and it would need to acknowledge the social dynamics of learning in the classroom. Investigating this issue would require much more sustained longitudinal research than has been possible to date. Poon's (2004) research across six specialist media arts schools (and two in particular) suggests the benefits of a sustained media literacy curriculum over Key Stage 3; but the evidence is document- and interview-based, implying the need for tracking studies of sample groups.

As we have noted, it remains very difficult to provide any definitive evidence about the *effectiveness* of media education, despite the evident enthusiasm and commitment of its advocates. Does media education actually make any difference to students' media use outside the classroom, particularly over the longer term? Teachers in the field have well-founded practical knowledge of what 'works' in terms of helping students to pass examinations; and there are research studies that appear to prove that, if you teach students about the media and then test them on what you have taught, they will show evidence of having learnt it (e.g. Austin and Johnson, 1997; Gadow et al., 1987; Kelley et al., 1987). However, this kind of 'input-output' measure really tells us very little about the long-term impact of media education, or its effectiveness in raising the media literacy 'level' of students.

This is a difficult issue in educational research more broadly. For example, the aim of history teaching is not just to enable students to pass examinations, but also to cultivate a form of 'historical awareness' that they will use and apply in their daily lives (for example in interpreting current events). Yet we have not seen any evidence that history teaching actually raises levels of historical awareness beyond what can be measured in tests and examinations (although researchers have certainly been very concerned with

such issues: see, for example, Lee and Ashby, 2000). Assessing the effectiveness of educational strategies would seem to be a reasonable aspiration, but there is a need to establish adequate methodologies that might enable researchers to explore it systematically.

Informal education

Rationales and approaches

In recent years, educational policy-makers have placed a new emphasis on ‘learning beyond the classroom', particularly for motivating young people who are disaffected from mainstream schooling. Authors such as Tom Bentley (1998) argue that 'informal' educational settings – such as neighbourhood learning centres, online networks and community action projects – can provide more active, relevant and flexible forms of learning that will equip young people more effectively for the challenges of the modern 'information society'.

Advocates of media education have often seen it as a means of building connections between schools and the wider community. Richards (1998) points to the more flexible and democratic styles of teaching and learning that apply in the context of production studios or workplaces; while Morgan (1998) has likewise argued for taking media education 'back to the streets', for example by encouraging forms of media production that might 'make a difference' to local communities. By enabling young people to be other than 'school pupils', such approaches may encourage them to assume a greater degree of autonomy and control over their own learning. In the sphere of youth and community work, such production-based activities are seen to have valuable outcomes in terms of promoting self-expression and self-representation, particularly for disadvantaged young people (de Block et al., 2004; Goodman, 2003), as well as having vocational relevance, by providing a potential means of access to the media for hitherto under-represented groups (Buckingham, 2003a: Chapter 11). In terms of cultural policy, it is also argued that the creative media producers of the future will not simply be ‘discovered’, but need to be nurtured and supported through a longer-term process of learning (Harvey et al., 2002).

There is a long history of the use of media in youth work, dating back at least to the 1970s, but the number of such projects has grown significantly in recent years as new funding has become available. In their recent BFI report, *Being Seen, Being Heard*, Harvey et al. (2002) distinguish between six approaches to moving image production by young people, as follows:

Youth Work. This approach utilises media as a social tool, as a means of empowering young people to become active citizens. It is usually adopted by youth organisations.

Community Media. This approach emphasises the need for wider access to the tools of communication, and utilises media (especially video) as a means to articulate public concerns about a specific issue, often targeting local policy-makers. It is usually adopted by community groups.

Youth Arts. This approach aims to facilitate youth voice and self-expression through media production. It has its origins in the community media approach, but is less tied to specific community issues.

Participatory Video. This approach uses video as an engaging motivational tool to develop effective group work. It can be used in a range of training contexts, or in social work.

Film and television production. This approach emphasises traditional production models and vocational skills that may be of value in future employment. It is sometimes motivated by a desire to involve social groups that are under-represented in the mainstream media industries.

Film-making workshops. The aim here is to offer experiential insight into specific aspects of media production, generally through one-off activities. This approach is usually adopted by media festivals and independent cinemas.

These different approaches have different motivations, and take place in different institutional settings. This in turn leads to different emphases in terms of teaching and learning. For example, in some cases 'process' (the activity of making media) is more important than 'product' (the end results). In some instances, the content of the production (what it 'says') is more important than the technical skills or creative abilities that young people develop in making it. Some approaches implicitly seem to favour a documentary style of production, while others lead to a more experimental arts-based practice. Of course, these differences are not necessarily absolute; and in reality, particular projects may well combine a range of approaches and motivations (not least in the attempt to secure adequate funding from a range of sources).

Evaluation

This kind of work has often been characterised by rhetorical claims about its 'empowering' possibilities, particularly for disadvantaged social groups. For example, Kirwan et al. (2003) argue that such projects have specific social benefits, such as improved motivation for disaffected boys, or the acquisition of technical media skills leading to enhanced opportunities in further education. In recent years, such arguments have been a key aspect of government policy relating to creativity and the arts (see Buckingham, 2003b). Indeed, giving disadvantaged young people access to participation in the arts and media increasingly seems to be seen as a means of dealing with a whole range of social ills.

However, these claims have proven remarkably difficult to substantiate in practice. To date, there have been very few empirical research studies that have sought to address these questions. Sefton-Green's (2004) broad-ranging review of informal learning with digital technologies finds few documented examples of such work in informal youth and community-based settings. The few small-scale studies that do exist point to the gap between rhetoric and reality that tends to characterise this work. For example, Buckingham et al. (1995: Chapter 4) draw attention to some of the difficulties posed by group work, and to the limitations of an apparently 'youth-centred' approach; while Jeong (2001) suggests that projects in this field may be characterised by incoherent aims and inadequate teaching strategies. A recent study of video production by migrant children in seven European countries found that the expectation of international representation and communication by children via publication of work on the internet was hindered, not just

by technical problems but also because children were not necessarily motivated to communicate with people they did not know (de Block et al., 2004).

These studies also point to the lack of clearly defined criteria by which such work might be evaluated. Most published accounts of youth arts are characterised by self-justification rather than critical rigour; and for policy makers, such work often seems to be valued more for what *appears* to be happening than what is actually being achieved (Selwood, 1997). Media production activities are frequently justified in terms of their ability to promote 'social and communication skills', or to develop 'self-esteem' and 'self-awareness'; but the criteria by which these things might be identified and measured are rarely well defined. Likewise, it is often far from clear how one might assess the value or quality of the work the young people produce. Some of these issues have been addressed by the most advanced work in this field in the United States, however, such as the ‘portfolio assessment’ approach adopted by Goodman (2003) and his colleagues.

These difficulties may partly reflect institutional constraints. Most projects of this kind are funded on a short-term basis, and (as in the formal sector) there is a distinct lack of specialist training for staff. A recent report on the informal youth media production sector in the UK (Harvey et al., 2002) draws attention to a number of such endemic problems. The projects surveyed have a wide variety of aims and modes of working, as well as very different levels of resourcing. Yet there is a lack of strategic, long-term funding, and of networks for sharing experience and good practice. Evaluation of such projects is often carried out on the basis of 'head counting', or in terms of narrowly measurable outcomes, rather than in any depth. Many suffer from a shortage of equipment, leading to the frequent phenomenon of young people occupying roles of actors, script-writers and so on, while the adults handle the camera and editing equipment. A similar finding emerged from the interim report on the First Lights film production programme for young people, funded by the UK Film Council (Finch and Nottage, 2002), where it appears that adult workshop leaders were largely responsible for editing the young people’s work.

Finally, in the UK at least, there is also very little infrastructure for the distribution or exhibition of young people's work, which means that much of it never reaches the wider audience it might deserve. The internet has been productively used in some cases, such as First Light’s “screening room” (http://www.firstlightmovies.com/screeningroom.php); or the *i-critique* website for peer reviewing of digital video work (see O’Hear, 2004). There are also impressive precedents for conventional screening in cinemas, in particular the Co-op Young Film-makers’ Festival at the NFT and the National Museum of Photography, Film and Television. However, these are exceptions, exhibiting a tiny proportion of the work of young people involved in media production.

Several of the points made in relation to media education in schools also apply to this sector. Given the increasing significance attached to ‘informal learning’ in educational funding, there is a significant need for further research into the range of work that is currently taking place. The survey by Harvey et al. (2002) provides a valuable starting point here, although it is confined to moving image media, and provides only descriptive case studies. Sefton-Green’s (2004) review for NESTA Futurelab suggests that there is a need to be much more specific about the nature of ‘informal learning’, and to address broader issues in learning theory. We would argue that, given the current lack of knowledge, some more in-depth case studies would help to identify a more detailed agenda of issues that could then serve as a basis for more broad-ranging research.

Other agencies

Potentially, a range of other agencies might have a role to play as enablers of media literacy. Indeed, advocates of media education frequently suggest that the way to achieve a media literate population is through partnership between schools, families and media institutions themselves (Pungente, 1996). However, the question of how effective or possible such partnerships might be is a matter for speculation at this stage.

As we have shown (Section 3), children develop media literacy partly through their encounters with the media: the media teach at least some of the competencies that are required to use and make sense of them. Yet media organisations could arguably play a much greater role through the provision of more explicit programmes of media education, via broadcast or non-broadcast means. The BBC, for example, is currently running a wide range of initiatives in promoting what is termed 'user-generated content': these provide production training in a range of media forms, and some (such as 21CC and Blast) are explicitly targeted at children and young people. The evaluation of such initiatives would almost certainly have broader implications for our understanding of media literacy.

We have argued that an emphasis on media literacy should not be seen to sanction a form of complacency about the media themselves – as if the existence of a media literate audience would somehow compensate for inadequate or poor quality provision. For example, there is the issue of design in relation to the internet. As Livingstone and Bober (2003) point out, young people often gain their skills as internet users through a process of 'trial and error'; and as Facer et al. (2003) suggest, learning in a digital environment should afford the rapid feedback needed to learn through experimentation. The converse of this, however, is that users are likely to experience difficulties with searching and locating information – and in developing their media literacy - when they encounter limitations of interface design or problems with the functionality of search tools (Facer et al., 2003). As we have noted, questions of usability are crucial in this respect; and although there will be particular issues here for the elderly and the visually impaired (Carmichael et al., 2003), it would be important to know if children also face such difficulties.

Of course, regulators have a role to play here, through providing information and guidance in various forms. As we have suggested, systems such as the watershed could be seen to promote a form of media literacy, insofar as they alert viewers to the likely nature of the content they will encounter. Evidence suggests that parents and children do not necessarily accept such information as absolute truth, but do take account of it along with other sources in making decisions about what to watch (Buckingham, 1996; Buckingham and Bragg, 2004; Hanley, 2002, Ramsay, 2003). Public campaigns, for example in relation to internet safety, can also play a role; although (perhaps appropriately) such campaigns tend to focus on highly specific issues rather than on media literacy more broadly. As media regulation moves towards a 'consumer advice' model, it will be important to assess the adequacy of the information that is provided to users at the point of access, and how they make use of it. For example, the BBFC now provides brief descriptions of content in addition to the age-based ratings it has traditionally used; and it is possible that similar systems of signposting and labelling will be introduced in other media. It would seem important to pilot and research the use of such systems at an early stage.

Section 5

Conclusion: filling the gaps

This Review has identified a number of gaps in our current knowledge about media literacy. In some instances, these gaps are simply a result of the novelty of the phenomena in question. Academic research is often slow to respond to new developments, and the process of publication (particularly for more reputable refereed journals) is notoriously slow. However, some media have been relatively neglected by researchers, and some fundamental issues have remained on the margins of academic endeavour, perhaps because they are seen to be lacking in status, or simply too complicated or time-consuming to pursue.

Gaps

The following would seem to be some of the most important gaps in the field:

1. In terms of media, the most obvious gaps here relate to **radio, mobile phones** and **online games**. In each case, there seems to have been very little basic academic research on children's uses of, or exposure to, these media, at least in the UK.

2. Other, more specific areas of media that are in need of further research include: children's use of **interactive television**; the use of **video camcorders;** and children's responses to **new media genres**, such as reality TV.

3. In relation to population groups, **younger children** (aged 8 and below) have been very much neglected, particularly in research on the internet and other new media. There is also a lack of research relating to specific **disabilities**, and of work looking in more detail at the influence of **ethnicity and religious background**.

4. In relation to the **internet**, there has been a considerable amount of research about access, but relatively little about how children understand or use different forms of internet content. Research now needs to explore children's responses to particular areas of **content**; and how they **evaluate** the reliability of the information they find.

5. Marketers are increasingly employing a wider range of **commercial strategies** across different media platforms, such as product placement, sponsorship, direct marketing, data mining, and branding. There is a need to research children's awareness of such strategies, and their responses to them.

6. Of the three areas identified in Ofcom's definition, 'create' is the one that is by far the most neglected by research. It is important to know much more about children's experience of **media production** not just in the context of education, but also (particularly) in the context of the home and the peer group.

7. In respect of formal education, the most significant absence in our view relates to **progression**. Educators need a coherent model, based on research, of what and how children should be learning about media at different stages of their school career. This would require some form of **longitudinal** study.

8. In informal education, there is a need for a more sharp-edged **critical evaluation** of the kinds of claims that are typically made about the benefits and outcomes of such work for different groups of young people.

Methodologies

There are also several issues relating to methodology that need to be addressed in future research:

1. The **'levels' of media literacy** that are identified in research depend very much on the methods that are used. As in developmental research more broadly, the use of more 'child-centred', open-ended measures or tasks – and of visual methods rather than verbal ones – tends to result in higher estimates of children's competence. This would suggest that the use of verbal multiple-choice questionnaires as a means of calibrating media literacy is unlikely to be reliable, unless it is combined with other methods.

2. One general problem with most of the work we have discussed is its reliance on **self-reporting**. For example, we know that young people express quite high levels of confidence in their use of the internet; but we actually know little in any detail about how they use search engines, engage with online games, or use message boards. The same might be said of expressed levels of trust. Here again, questionnaire data alone is likely to prove misleading; and there is a need for more **observational** studies.

3. Likewise, while we do know a certain amount about children's levels of media literacy as they are assessed in interviews or questionnaires (competence), we know very little about **how media literacy is actually used in everyday life** (performance). For example, research on the use of media in the home is very reliant on parents' and children's self-reports. We need to look more closely at what families actually do, rather than simply what they say they do. Again, this would suggest a need for more ethnographic or **observational** studies.

4. One of the methodological difficulties in relation to education is establishing **evidence of effectiveness**. We do not really know how children use or apply what they learn about the media in school to what they do outside school. As we have noted, there are significant problems with 'input – output' measures, particularly if they are limited to factual recall. A key task here is to develop more open-ended tasks and measures that will enable children to apply their media literacy in specific situations.

5. Media research with children can pose significant **ethical** dilemmas. These are most apparent when it comes to communication via new media, for example in the case of online chat, instant messaging and mobile phones. There is a need here to find ways of accessing data that do not violate accepted standards for privacy and confidentiality. The use of visual data in research also poses unique ethical problems.

Concluding recommendations

Finally, there are three more general recommendations with which we would like to conclude.

1. On the basis of our own review, and of the consultative academic seminar that formed part of this work, we would wish to re-emphasise the need for a diverse and flexible definition of 'media literacy'. The nature and the extent of the media literacy that individuals need and develop depends very much on the purposes for which they use the media in the first place. Different social groups may have very different orientations to the media, and develop different kinds of literacy that reflect this. Like print literacy, media literacy should not be seen as a purely cognitive, rational affair: it also involves emotional response, enjoyment and cultural appreciation. It is far more than simply a matter of learning to protect oneself from things that are seen as being in some way bad or harmful. Future research needs to adopt a broad, non-reductionist approach to studying media literacy in practice.

2. Secondly, there needs to be more sharing and dissemination of the research that is currently being undertaken in this field. Our brief for this review was to consider academic research. We have also included publicly-available research from other sources; but it is the case that a great deal of relevant work on these issues has been undertaken within the media industries which rarely sees the light of day. This work may well be more up-to-date than academic research; and it may also employ innovative methodologies. This may be particularly true of work relating to newer media. While we accept that much industry research is commercially sensitive, we feel that greater efforts could be made by the media industries to make their work available in the public domain once a set period of time has elapsed, for example. We would suggest that Ofcom, as the leading regulatory body, could play a constructive role in this respect in generating a dialogue between industry and academic researchers.

3. Finally, an emphasis on media literacy – while extremely important and constructive – does not obviate the need for other forms of regulation. We would include here not just the more 'negative' forms of regulation that are designed to protect children and young people from harm of various kinds; but also the more 'positive' forms of content regulation that stipulate the diversity and quality of media material that children have a right to receive. In this respect, we believe the promotion of media literacy should be seen as part of a broader regulatory strategy, and not as a substitute for it.

Section 6

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