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Defining digital literacy

What do young people need to know about digital media?

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ABSTRACT

This article offers a rationale for the notion of «digital literacy» in education. Pointing to some of the limitations of previous proposals in this field, it outlines a framework based on four key concepts drawn from media education. It applies these concepts to the World Wide Web and to computer games, and discusses the role of digital media production by students in developing digital literacy. The article emphasises the importance of developing critical approaches to digital media as a necessary prerequisite for using them as resources for learning.

Keywords

media literacy, digital literacy, media education

> If you want to use television to teach somebody, you must first teach them how to use television.
>
> (Umberto Eco, 1979)

Umberto Eco's argument about the educational use of television can equally be applied to newer media. As Eco implies, media should not be regarded merely as teaching aids or tools for learning. Education *about* the media should be seen as an indispensable prerequisite for education *with* or *through* the media. Likewise, if we want to use the internet or computer games or other digital media to teach, we need to equip students to understand and to critique these media: we cannot regard them simply as neutral means of delivering information, and we should not use them in a merely functional or instrumental way.

My aim in this article is to identify some of the forms that this education might take, and some of the questions that it might raise. I argue for a particular definition of «digital literacy» that goes well beyond some of the approaches that are currently adopted in the field of information technology in education. Indeed, implicit in my argument is a view that new digital media can no longer be regarded simply as a matter of «information» or of «technology». This is particularly the case if we are seeking to develop more effective connections between children's experiences of technology outside school and their experiences in the classroom.

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With the growing convergence of media (which is driven by commercial forces as much as by technology), the boundaries between «information» and other media have become increasingly blurred. In most children's leisure-time experiences, computers are much more than devices for information retrieval: they convey images and fantasies, provide opportunities for imaginative self-expression and play, and serve as a medium through which intimate personal relationships are conducted. These media cannot be adequately understood if we persist in regarding them simply as a matter of machines and techniques, or as «hardware» and «software». The internet, computer games, digital video, mobile phones and other contemporary technologies provide new ways of mediating and representing the world, and of communicating. Outside school, children are engaging with these media, not as technologies but as *cultural forms*. If educators wish to use these media in schools, they cannot afford to neglect these experiences: on the contrary, they need to provide students with means of understanding them. This is the function of what I am calling digital literacy.

MULTIPLE LITERACIES

Over the past twenty years, there have been many attempts to extend the notion of literacy beyond its original application to the medium of writing. As long ago as 1986, one of the leading British researchers in the field, Margaret Meek Spencer, introduced the notion of «emergent literacies» in describing young children's media-related play (Spencer, 1986); and the call for attention to «new» or «multiple» literacies has been made by many authors over subsequent years (Bazalgette, 1988; Buckingham, 1993a; Tyner, 1998; and many others). We have seen extended discussions of visual literacy (e.g. Moore & Dwyer, 1994), television literacy (Buckingham, 1993b), cine-literacy (British Film Institute, 2000), and information literacy (Bruce, 1997). Exponents of the so-called New Literacy Studies have developed the notion of «multiliteracies», referring both to the social diversity of contemporary forms of literacy, and to the fact that new communications media require new forms of cultural and communicative competence (Cope & Kalantzis, 2000).

This proliferation of literacies may be fashionable, but it raises some significant questions. Popular discussions of «economic literacy», «emotional literacy» and even «spiritual literacy» seem to extend the application of the term to the point where any analogy to its original meaning (that is, in relation to written language) has been lost. «Literacy» comes to be used merely as a vague synonym for «competence», or even «skill». It is worth noting in this respect that such expressions may be specific to the English language. In some other languages, the equivalent term is more overtly tied to the notion of writing – as in the French word «alphabetisation»; while in other cases, «media literacy» is often translated into a more general term for skill or competence – as in the German «Medienkompetenz».

The term «literacy» clearly carries a degree of social status; and to use it in connection with other, lower status forms such as television, or in relation to newer media, is thus to make an implicit claim for the latter's validity as objects of study. Yet as uses of the term multiply, the polemical value of such a claim – and its power to convince – is bound to decline. Thus, while recognising the significance of visual and audio-visual media, some scholars challenge this extension of the term, arguing that «literacy» should continue to be confined to the realm of writing (Barton, 1994; Kress, 1997); while others dispute the idea that visual media require a process of cultural learning that is similar to the learning of written language (Messaris, 1994). The analogy between writing and visual or audio-visual media such as television or film may be useful at a general level, but it often falls down when we look more closely: it is possible to analyse broad categories such as narrative and representation across all these media, but it is much harder to sustain more specific analogies, for example between the film shot and the word, or the film sequence and the sentence (Buckingham, 1989).

Nevertheless, the use of the term «literacy» implies a broader form of education about media, that is not restricted to mechanical skills or narrow forms of functional competence. It suggests a more rounded, humanistic conception that is close to the German notion of «Bildung». So what are the possibilities and limitations of the notion of «*digital* literacy»? Is it just a fancy way of talking about how people learn to use digital technologies, or is it something broader than that? Indeed, do we really need yet another literacy?

TOWARDS DIGITAL LITERACY

The notion of digital literacy is not new. Indeed, arguments for «computer literacy» date back at least to the 1980s. Yet as Goodson and Mangan (1996) have pointed out, the term «computer literacy» is often poorly defined and delineated, both in terms of its overall aims and in terms of what it actually entails. As they suggest, rationales for computer literacy are often based on dubious assertions about the vocational relevance of computer skills, or about the inherent value of learning with computers, which have been widely challenged. In contemporary usage, digital (or computer) literacy often appears to amount to a minimal set of skills that will enable the user to operate effectively with software tools, or in performing basic information retrieval tasks. This is essentially a *functional* definition: it specifies the basic skills that are required to undertake particular operations, but it does not go very far beyond this.

For example, the British government has attempted to define and measure the ICT skills of the population alongside traditional literacy and numeracy as part of its *Skills for Life* survey (Williams et al., 2003). This survey defines these skills at two levels. Level 1 includes an understanding of common ICT terminology; the ability to use basic features of software tools such as word-processors and spreadsheets; and the ability to save data, copy and paste, manage

files, and standardise formats within documents. Level 2 includes the use of search engines and databases, and the ability to make more advanced use of software tools. In the 2003 survey, over half of the sample of adults was found to be at «entry level or below» (that is, not yet at Level 1) in terms of practical skills. Other research suggests that adults' ability to use search engines for basic information retrieval, for example, is distinctly limited (Livingstone et al., 2005, pp. 23–24).

Another context in which the notion of digital literacy has arisen in recent years is in relation to online safety. For example, the European Commission's «Safer Internet Action Plan» has emphasised the importance of internet literacy as a means for children to protect themselves against harmful content. Alongside the range of hotlines, filters and «awareness nodes», it has funded several educational projects designed to alert children to the dangers of online paedophiles and pornography – although in fact it is notable that many of these projects have adopted a significantly broader conception of internet literacy, that goes well beyond the narrow concern with safety. The «Educaunet» materials, for example, provide guidance on evaluating online sources and assessing one's own information needs, as well as recognising the necessity and the pleasure of risk for young people (see *www.educaunet.org*).

Even so, most discussions of digital literacy remain primarily preoccupied with *information* – and therefore tend to neglect some of the broader cultural uses of the internet (not least by young people). To a large extent, the concern here is with promoting more efficient uses of the medium – for example, via the development of advanced search skills (or so-called «power searching») that will make it easier to locate relevant resources amid the proliferation of online material. Popular guides to digital literacy have begun to address the need to evaluate online content (e.g. Gilster, 1997; Warlick, 2005); yet these formulations still tend to focus on technical «know-how» that is relatively easy to acquire, and on skills that are likely to become obsolete fairly rapidly. Much of the discussion appears to assume that information can be assessed simply in terms of its factual accuracy. From this perspective, a digitally literate individual is one who can search efficiently, who compares a range of sources, and sorts authoritative from non-authoritative, and relevant from irrelevant, documents (Livingstone et al., 2005, p. 31). There is little recognition here of the symbolic or persuasive aspects of digital media, of the emotional dimensions of our uses and interpretations of these media, or indeed of aspects of digital media that exceed mere «information».

Bettina Fabos (2004) provides a useful review of such attempts to promote more critical evaluation of online content. In practice, she argues, evaluation «checklists» are often less than effective. Students may feel inadequate assessing sites when they are unfamiliar with the topics they cover; and they largely fail to apply these criteria, instead emphasising speedy access to information and appealing visual design. More to the point, however, such «web evaluation» approaches appear to presume that objective truth will eventually be achieved through a

process of diligent evaluation and comparison of sources. They imply that sites can be easily divided into those that are reliable, trustworthy and factual, and those that are biased and should be avoided. In practice, such approaches often discriminate against low-budget sites produced by individuals, and in favour of those whose high-end design features and institutional origins lend them an air of credibility. The alternative, as Fabos suggests, is to recognise that «bias» is unavoidable, and that information is inevitably «couched in ideology». Rather than seeking to determine the «true facts», students need to understand «how political, economic, and social context shapes all texts, how all texts can be adapted for different social purposes, and how no text is neutral or necessarily of 'higher quality' than another» (Fabos, 2004, p. 95).

As this implies, digital literacy is much more than a functional matter of learning how to use a computer and a keyboard, or how to do online searches. Of course, it needs to begin with some of the «basics». In relation to the internet, for example, children need to learn how to locate and select material – how to use browsers, hyperlinks and search engines, and so on. But to stop there is to confine digital literacy to a form of instrumental or functional literacy. The skills that children need in relation to digital media are not confined to those of information retrieval. As with print, they also need to be able to evaluate and use information critically if they are to transform it into knowledge. This means asking questions about the sources of that information, the interests of its producers, and the ways in which it represents the world; and understanding how these technological developments are related to broader social, political and economic forces.

MEDIA LITERACY GOES ONLINE

This more *critical* notion of literacy has been developed over many years in the field of media education; and in this respect, I would argue that we need to extend approaches developed by media educators to encompass digital media. There are four broad conceptual aspects that are generally regarded as essential components of media literacy (see Buckingham, 2003). While digital media clearly raise new questions, and require new methods of investigation, this basic conceptual framework continues to provide a useful means of mapping the field:

Representation. Like all media, digital media represent the world, rather than simply reflect it. They offer particular interpretations and selections of reality, which inevitably embody implicit values and ideologies. Informed users of media need to be able to evaluate the material they encounter, for example by assessing the motivations of those who created it and by comparing it with other sources, including their own direct experience. In the case of information texts, this means addressing questions about authority, reliability and bias; and it also necessarily invokes broader questions about whose voices are heard and whose viewpoints are represented, and whose are not.

Language. A truly literate individual is able not only to use language, but also to understand how it works. This is partly a matter of understanding the «grammar» of particular forms of communication; but it also involves an awareness of the broader codes and conventions of particular genres. This means acquiring analytical skills, and a meta-language for describing how language functions. Digital literacy must therefore involve a systematic awareness of how digital media are constructed, and of the unique «rhetorics» of interactive communication: in the case of the web, for example, this would include understanding how sites are designed and structured, and the rhetorical functions of links between sites (cf. Burbules & Callister, 2000, pp. 85–90).

Production. Literacy also involves understanding who is communicating to whom, and why. In the context of digital media, young people need to be aware of the growing importance of commercial influences – particularly as these are often invisible to the user. There is a «safety» aspect to this: children need to know when they are being targeted by commercial appeals, and how the information they provide can be used by commercial corporations. But digital literacy also involves a broader awareness of the global role of advertising, promotion and sponsorship, and how they influence the nature of the information that is available in the first place. Of course, this awareness should also extend to non-commercial sources and interest groups, who are increasingly using the web as a means of persuasion and influence.

Audience. Finally, literacy also involves an awareness of one's own position as an audience (reader or user). This means understanding how media are targeted at audiences, and how different audiences use and respond to them. In the case of the internet, this entails an awareness of the ways in which users gain access to sites, how they are addressed and guided (or encouraged to navigate), and how information is gathered about them. It also means recognising the very diverse ways in which the medium is utilised, for example by different social groups, and reflecting on how it is used in everyday life – and indeed how it might be used differently. (In some respects, of course, the term «audience» (which is easily applied to «older» media) fails to do justice to the interactivity of the internet – although substitute terms are no more satisfactory (Livingstone, 2004)).

CASE 1: WEB LITERACY

How might these broad approaches be applied specifically to studying the World Wide Web? Figure 1 indicates some of the issues that might be addressed here, and is adapted from Buckingham (2003). It incorporates several of the key concerns of the «web evaluation» approaches discussed above, but sets these within a broader context. (Different issues would undoubtedly need to be explored in relation to other uses of the internet, such as e-mail, instant messaging or blogging.)

FIGURE 1 – THE WORLD WIDE WEB: ISSUES FOR STUDY

REPRESENTATION

- How websites claim to «tell the truth», and establish their authenticity and authority.
- The presence or absence of particular viewpoints or aspects of experience.
- The reliability, veracity and bias of online sources.
- The implicit values or ideologies of web content, and the discourses it employs.

LANGUAGE

- The use of visual and verbal «rhetorics» in the design of websites (for example, graphic design principles, the combination of visuals and text, the use of sound).
- How the hypertextual (linked) structure of websites encourages users to navigate in particular ways.
- How users are addressed: for example, in terms of formality and «user-friendliness».
- The kinds of «interactivity» that are on offer, and the degrees of control and feedback they afford to the user.

PRODUCTION

- The nature of web authorship, and the use of the internet by companies, individuals or interest groups as a means of persuasion and influence.
- The technologies and software that are used to generate and disseminate material on the web, and the professional practices of web «authors».
- The significance of commercial influences, and the role of advertising, promotion and sponsorship.
- The commercial relationships between the web and other media such as television and computer games.

AUDIENCE

- The ways in which users can be targeted by commercial appeals, both visibly and invisibly.
- The nature of online «participation», from web polls to bulletin boards to «user-generated content».
- How the web is used to gather information about consumers.
- How different groups of people use the internet in their daily lives, and for what purposes.
- How individuals or groups use and interpret particular sites, and the pleasures they gain from using them.
- Public debates about the «effects» of the internet, for example in relation to online safety and «addiction».

In my view, this approach is significantly more comprehensive and more rigorous than most existing approaches to «internet literacy». It incorporates questions about bias and reliability, but sets these within a broader concern with representation. This in turn is related to a systematic analysis of the «grammar» or «rhetoric» of online communications, that includes visual as well as verbal dimensions; and to an account of the commercial and institutional interests at stake. The approach also entails a reflexive understanding of how these factors impact on the user – how users are targeted and invited to participate, what they actually do with the medium, and what they find meaningful and pleasurable. I would argue that this approach moves well beyond a

narrow concern with «information» and a simplistic approach to evaluation that sees it merely in terms of truth and falsity.

CASE 2: GAME LITERACY

The approach outlined here is not only applicable to «information» media. In principle, it can also be applied to other aspects of digital media, including «fictional» media such as computer and video games. Of course, there is a growing interest in using computer games in education; but here again, most proposals implicitly conceive of games as a neutral «teaching aid». In line with Eco's argument about television, I would argue that we also need to be teaching young people about games as a *cultural form* – and that this is a necessary prerequisite for using games in order to teach other curriculum areas.

To date, most proposals for teaching about games in schools have been developed by teachers of English or language arts (e.g. Beavis, 1998). As such, these proposals tend to emphasise the aspects of games that fit most easily with English teachers' traditional literary concerns, for example with narrative or the construction of character. In terms of our four-part framework, the emphasis is on language and to some extent on representation; but there is little engagement with the more sociological issues to do with production and audience that are important concerns for media teachers.

Equally significantly, this quasi-literary approach can lead to a rather partial account of the textual dimensions of games – which itself raises significant issues about the definition of «game literacy». Clearly, there are many elements that games share with other representational or signifying systems. On one level, this is a manifestation of the convergence that increasingly characterises contemporary media: games draw upon books and movies, and vice-versa, to the point where the identity of the «original» text is often obscure. Users (players, readers, viewers) must transfer some of their understandings across and between these media, and to this extent it makes sense to talk about «literacies» that operate – and are developed – across media (Mackey, 2002). However, analysing games simply in terms of these representational dimensions produces at best a partial account. For example, characters in games function both in the traditional way as representations of human (or indeed non-human) «types», and as points of access to the action; but the crucial difference is that they can be manipulated, and in some instances positively changed, by the player. This points to the necessary interpenetration of the *representational* and the *ludic* dimensions of games – that is, the aspects that make games *playable* (Carr et al., 2006).

So is there also a «literacy» that applies to the ludic dimension of games? There is a growing literature, both in the field of game design and in academic research, that seeks to identify basic generative and classificatory principles in this respect (e.g. Salen & Zimmerman, 2003). This kind of analysis focuses on

issues such as how games manage time and space, the «economies», goals and obstacles of games, and issues such as rules and conditionality. It is these ludic aspects that distinguish games from movies or books, for example. However, these elements are not separate from, or opposed to, the representational elements; and any account of «game literacy» needs to address *both* the elements that games have in common with other media *and* the elements that are specific to games (whether or not they are played on a computer).

As this implies, the analysis of games requires new and distinctive methods that cannot simply be transferred from other media – although this is equally the case when we compare television and books, for example. While some elements are shared across these media, others are distinctive to a specific medium; and hence we need to talk both in terms of a more general «media literacy» *and* in terms of specific «media literacies», in the plural. Furthermore, developing «game literacy» also needs to address the aspects of production and audience – although here again, the term «audience» seems an inadequate means of describing the interactive nature of play. Figure 2 summarises some of the key issues to be addressed in applying the media literacy framework to computer games, and draws on some other recent work in this field (Burn, 2004; Oram & Newman, 2006).

FIGURE 2 – COMPUTER GAMES: ISSUES FOR STUDY

REPRESENTATION

- How games lay claim to «realism», for example in their use of graphics, sounds and verbal language.
- The construction and manipulation of game «characters».
- The representations of specific social groups, for instance in terms of gender and ethnicity.
- The nature of game «worlds» and their relationship to real worlds (for example, in terms of history, geography and physics).

LANGUAGE

- The functions of verbal language (audio and written text), still and moving images, sounds and music.
- The distinctive codes and conventions of different game genres, including the kinds of interactivity – or «playability» – that they offer.
- How different game genres manage space and time (that is, narrative), and how they position the player.
- The ludic dimensions of games – rules, economies, objectives, obstacles, and so on.

PRODUCTION

- The «authorship» of games, and the distinctive styles of graphic artists and game designers.
- The technologies and software that are used to create games, and the professional practices of game companies.
- The commercial structure of the games industry (developers, publishers, marketers), and the role of globalisation.
- The relationships between games and other media such as television, books and movies, and the role of franchising and licensing.

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AUDIENCE
- The experience and pleasure of play, and how it relates to the rules and structures of games.
- The social and interpersonal nature of play, and its functions in everyday life, particularly for different social groups (for example, different genders or age groups).
- The role of advertising, games magazines and online commentary in generating expectations and critical discourse around games.
- Fan culture, including the role of fan websites, fan art, «modding», machinima and so on.
- Public debates about the «effects» of games, for example in relation to violence.

The digital literacy «recipe» outlined here is intended only as a brief indication of the possibilities: more detailed proposals for classroom practice can be found elsewhere (e.g. Burn & Durran, in press; MacDougall, 2006). Obviously, these suggestions will vary according to the needs and interests of the students; although it should be possible to address the general conceptual issues at any level. Nevertheless, it should be apparent that approaching digital media through media education is about much more than simply «accessing» these media, or using them as tools for learning: on the contrary, it means developing a much broader *critical understanding*, which addresses the textual characteristics of media alongside their social, economic and cultural implications.

«WRITING» DIGITAL MEDIA

Finally, it is important to recognise that these critical understandings can and should be developed through the experience of media production, and not merely through critical analysis. Media literacy involves «writing» the media as well as «reading» them; and here again, digital technology presents some

important new challenges and possibilities. The growing accessibility of this technology means that quite young children can easily produce multimedia texts, and even interactive hypermedia – and increasing numbers of children have access to such technology in their homes. Indeed, new media are a key aspect of the much more participatory media culture that is now emerging – in the form of blogging, social networking, game-making, small-scale video production, podcasting, social software, and so on (Jenkins, 2006).

Growing numbers of teachers have sought to harness the productive possibilities of these media, albeit in quite limited ways. As with older media (Lorac & Weiss, 1981), many teachers are using multimedia authoring packages as a means of assisting subject learning in a range of curriculum areas. Here, students produce their own multimedia texts in the form of websites or CD-ROMs, often combining written text, visual images, simple animation, audio and video material. Vivi Lachs (2000), for example, describes a range of production activities undertaken with primary school students in learning about science, geography or history. These projects generally involve children «representing» their learning for an audience of younger children in the form of multimedia teaching materials or websites. Yet although the children's productions frequently draw on elements of popular culture (such as computer games), the content of the productions is primarily factual and informational – resulting in a form of «edutainment».

Other potential uses of digital media have emerged from arts education. These projects often involve the participation of «digital artists» external to the school, and their primary emphasis is on the use of the media for self-expression and creative exploration. The implicit model here is that of the avant-garde multimedia art work, although (here again) students tend to «import» elements of popular culture. Rebecca Sinker (1999), for example, describes an online multimedia project which set out to develop links between an infant school and its community. The project was intended to mark the school's centenary, and to offer the children opportunities «to investigate their own families, community, histories and experiences, exploring changes and celebrating diversity». Using multimedia authoring software, the project brought together photography, video, drawing, story-telling, digital imaging, sound and text. Perhaps most significantly, the results of the project (in the form of a website) were available to a much wider audience than would normally have been the case with children's work.

These approaches are certainly interesting and productive; but there are two factors that distinguish them from the use of digital production in the context of media education. Firstly, media education is generally characterised by an explicit focus on popular culture – or at least on engaging with students' everyday experiences of digital media, rather than attempting to impose an alien «artistic» or «educational» practice. In the case of the internet, this means recognising that most young people's uses of the medium are not primarily «educational», at least in the narrow sense. Teachers need to recognise that young

people's uses of the internet are intimately connected with their other media enthusiasms – and that this is bound to be reflected in the texts they produce.

Secondly, there is the element of theoretical reflection – the dynamic relationship between making and critical understanding that is crucial to the development of «critical literacy». In the context of media education, the aim is not primarily to develop technical skills, or to promote «self-expression», but to encourage a more systematic understanding of how the media work, and hence to promote more reflective ways of using them. In this latter respect, media education directly challenges the instrumental use of media production as a transparent or neutral «teaching aid». In fact, these digital tools can enable students to *conceptualise* the activity of production in much more powerful ways than was possible with analogue media. For example, when it comes to video production, digital technology can make overt and visible some key aspects of the production process that often remain «locked away» when using analogue technologies. This is particularly apparent at the point of editing, where complex questions about the selection, manipulation and combination of images (and, in the case of video, of sounds) can be addressed in a much more accessible way. In the process, the boundaries between critical analysis and practical production – or between «theory» and «practice» – are becoming increasingly blurred (see Burn & Durran, 2006).

CONCLUSION

The kinds of work I have referred to in this article are by no means new. On the contrary, they draw on an existing practice in schools that has a long history (see Buckingham, 2003). As in any other area of education, there is both good and bad practice in media education; and there is currently an alarming shortage of specialist trained media teachers. Nevertheless, it is clear that effective media education depends upon teachers recognising and respecting the knowledge students already possess about these media – while also acknowledging that there are limitations to that knowledge, which teachers need to address.

I have argued here for an extension of media literacy principles to digital texts. This certainly entails some adaptation in how we think about media literacy – in its conceptual apparatus, and its methods of study (for example, in how we think about «audiences», or how we address the medium of games). Nevertheless, the media literacy model puts issues on the agenda that are typically ignored or marginalised in thinking about technology in education – and particularly in the school subject of ICT. Media literacy provides a means of connecting classroom uses of technology with the «techno-popular culture» that increasingly suffuses children's leisure time – and it does so in a critical, rather than a celebratory way. It raises critical questions that most approaches to information technology in education fail to address, and thereby moves decisively beyond a merely instrumental use of technology.

Ultimately, however, my argument here is much broader than simply a call for media education. The metaphor of literacy – while not without its problems – provides one means of imagining a more coherent, and ambitious, approach. The increasing convergence of contemporary media means that we need to be addressing the skills and competencies – the multiple literacies – that are required by the whole range of contemporary forms of communication. Rather than simply adding media or digital literacy to the curriculum menu, or hiving off information and communication technology into a separate school subject, we need a much broader reconceptualisation of what we mean by literacy in a world that is increasingly dominated by electronic media.

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