
The Opportunities and Challenges of the Digital Age: A Blind User's Perspective

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ABSTRACT

Library services for blind and visually impaired people (VIPs) have been inextricably tied up with alternative format production, which has never risen above 4 percent of standard-text publishing. The impact of digital publishing has been modest on Braille, modified print and audio; this partly results from production methods but also from defensive copyright in which the rights of authors outweigh consumer access rights. In this instance librarians should: assert customer rights against author rights; require piracy evidence; work towards a global digital accessibility library; and advocate a generic right to information. In a global digitally converged environment VIPs will need help with navigation, data evaluation and file migration; these needs will alter the traditional, neutral, role of librarians, transforming them into facilitators, covering what were traditionally described as broadcasting and telecommunications. The biggest single problem for VIPs will be the explosion of digital static and moving pictures.

INTRODUCTION

I am not a "normal" or representative library user, if there is such a phenomenon, not the man on the Clapham omnibus nor the little old lady from Peoria. I learned Braille at a special primary school for blind children; I attended a standard secondary school and studied at Cambridge and Harvard. I have been deeply involved in the operations of the Royal National Institute of the Blind (RNIB) and the National Library for the Blind (NLB) in the area of Braille production and library services as a consultant and as a trustee. I have worked in services for blind and visually impaired people (VIPs) in more than seventy, mostly developing,

countries and I am now vice chair of RNIB and studying for a master's degree in systematic theology. My day job is concerned with the convergence of broadcasting, computing and telecommunications with a bias towards social inclusion that embraces the concerns of VIPs. I am a broadcasting regulator in the UK with de facto responsibilities for accessible content and media literacy. I sit on the Digital TV Group concerned with the engineering involved in the launch of digital television and I spent many years as an active participant in the World Wide Web Consortium (W3C) Web Accessibility Initiative (WAI).¹ Almost uniquely, my work spans that massive gulf between engineers and legislators.

This article will provide a somewhat superficial overview of the issues of content accessibility in the digital environment as they affect VIPs and, to some extent, librarians; and, of course, how these two sets of factors might knit together. An article such as this can often fall some way between being indicative and comprehensive; this is definitely the former which accounts for the frequent occurrence of lists. It largely leaves to one side such issues as fundamental rights, finance, and complex technical issues. Its aim is to provide a narrative that links analogue alternative format provision with the opportunities and challenges that lie ahead in the converged digital environment.

ALTERNATIVE FORMAT PRODUCTION

Unlike a general commentary on standard print library services where the supply of material for loan, as set against the supply of material published, can be taken for granted, any commentary on the history and present status of library services for VIPs would be incomplete without some consideration of the interstices of alternative format publishing and production. Whereas the task of the print librarian is to analyze publishers' lists of books, periodicals and journals to see what fraction of the whole oeuvre best fits the remit and budget of a particular library, the alternative format librarian is loath to reject any material and in most places will also have the task of deciding which items in the mass of printed material available should be rendered in alternative formats.

The RNIB estimates that approximately 4 percent of books published in the United Kingdom (UK) are rendered in alternative formats (primarily audio) while so little nonbook material is thus rendered that it corrects to zero percent (Lockyer, Creaser, & Davies, 2005). The selection criteria, in the UK at least, for the production of alternative format materials may be conveniently, though not entirely tidily, split into three types:

- Popular works of fiction and biography for general readers
- "Classic" fiction and nonfiction whose contemporaneously perceived virtues justify immediate incorporation

- Ad hoc rendering in response to individual needs, mostly in connection with formal education

With the possible exception of contemporary light fiction, the UK holdings fall short in every category but particularly with respect to

- contemporary, as opposed to outdated, academic material, not least in subjects that are incorrectly thought to change very little over time, such as philosophy and theology;
- popular nonfiction and lifestyle material frequently based on public service broadcasting;
- serious fiction;
- ephemera; and
- pornography.²

Another production factor that cannot be overlooked is the time gap between print and alternative format production. When you think about it, whether you are a student or a voracious reader who likes to discuss new books with friends, a two-year wait for a book is destructively long. In a system that cannot hope to meet demand time is the great queue-cutter.

This dearth has been a constant factor in access to material in alternative formats, made more understandable because of the very different production techniques involved in creating an audio book, a modified print book, and a Braille book. During the first quarter century of the digital age during which convergences in production have become more obvious, the impact of computing on Braille, modified print, and synthetic speech production has been surprisingly small. There are a number of reasons for this that apply in different degrees in different places but the major factors are

- the continuing management of Braille production systems on traditional, "sheltered workshop" lines with only minor changes in production practice between analogue and digital production (notably the failure to use electronic tools for quality control);
- an unbalanced emphasis, as the result of misguided lobbying, on automated Braille translation software coding, as opposed to layout; and,
- a false perception that there is a trade-off, rather than a complementarity, between Braille and large print from a single, digital file.

Many people use the term "large print" but this overlooks a minority requirement—for example for those suffering from retinitis pigmentosa—for smaller than standard print; and it overlooks the crucial role of font selection.

One final remark may help to explain the balance of alternative format production which, in terms of the amount of production compared with

potential users, is heavily skewed in favor of Braille and against large print. Organizations that serve VIPs tend, quite properly, to take account of the views of users. Not only in "the West" but all over the world, the vocal user community that contributes most to policy formulation consists of the tiny minority of congenitally or paediatrically blind people who have grown up in the visual impairment education system as Braille users as opposed to adventitiously blind people who are highly resistant to Braille and require large print and/or audio books and documents. This, incidentally, should warn those quite rightly concerned with user participation and feedback against an uncritical demographic.

It would be easy at this point to digest this analysis and then move on; but an effort of imagination is required. Imagine this was happening to you. Imagine you went into a bookshop with 4 percent of its shelves filled with books; those books were at least two years old and consisted almost entirely of light fiction, textbooks and an idiosyncratic miscellany. How would you feel? How, do you think, would this affect your life as a human being, as a citizen, as a person intent on rewarding work and stimulating leisure? There are, as I have implied, some helpful technological developments to improve the situation but I want to consider these in the context of a properly founded legal framework to which I will now turn.

RIGHTS AND COPYRIGHT

The extent to which VIPs can access alternative format material does not relate to the constitutional situation in which they find themselves. The formalist Constitution of the United States with its associated Bill of Rights is no better a guarantor of Braille and audio production than the patchwork of constitutional provisions that characterizes the UK. Nowhere is the right to read an absolute right and nowhere is a theoretical right to information translated into anything like complete enjoyment of a right. In spite of the fact that VIPs everywhere pay direct or sales taxes that contribute to public library services this is no guarantee that they will receive any return for their payments. Of course we are all used to the idea that taxes paid by one person go towards services she does not use, but whereas the general structure of taxation is supposed to facilitate a net transfer to the less well off from the better off, this net transfer is usually from less well off VIPs to their better off seeing peers. This argument, in the UK at least, has cut no ice with central or local government, and matters have not been helped by not-for-profit providers who have grown to see their client base as an institutional asset. As long as the private, voluntary sector is prepared to finance and provide a service (without declaring its fatal flaws) the public sector will surely let it. It is unreasonable to expect a politician or senior official to know that an alternative format library service run by the not-for-profit sector only offers a fraction of what is offered by the public library service. The appropriate model, once public sector

obligation and not-for-profit sector limitations have been fully clarified, is one of agency where specialist providers are paid by the public sector. An important first step is to establish case law and regulations on what constitutes a library service and whether this does, or should, include provision for VIPs.

Even if such a right to read were conceded as general it would still have to face competition for legitimacy within an overall rights framework. The past decade has shown both in the European Union (EU) and the United States that the right to read must be balanced by the author's rights enshrined in copyright. It took more than a century for Braille transcription rights to be automatically accorded in the United Kingdom; in the EU alternative format access was deemed less important than the author's right to withhold permission. Only in the United States and Canada has the general right been accorded, but this operates strictly within nation-state boundaries, a topic to which we will return.

Behind the opposition to granting alternative format production rights there lies a myth born of the endemic defensiveness of the publishing industry—that of the text pirate. Now it is the case that high-quality pirate DVD copies of forthcoming movies are on the streets in Singapore before official release and it is true that there has been some music piracy from Autolychus³ in Shakespeare's *A Winter's Tale* to Napster (although over the technology cycle this usually generates net additional sales). There has even been a little pornographic-text piracy of books such as *Fanny Hill* but the idea that VIPs are going to use digital text files to produce text print-outs or audio files to produce pirate audio, for commercial purposes, is totally preposterous. If anything is worth pirating there will be networks with better production and distribution systems than any individual VIP. Agencies concerned with VIPs should follow four lines of action that are closely linked, the first two of which I will deal with summarily:

- Any publisher pronouncement must be judged against probability and not possibility and against evidence rather than assertion.
- Library services for VIPs should seriously consider invoking rights of access in the face of copyright barriers. This puts the onus on authors to sue, thus creating case law that may initially produce an unfavorable outcome but that will consequently produce a better environment for change.
- A global digital publishing deposit should be established.
- A generic platform and medium-free right to information in accessible form at an equivalent price should be established.⁴

As the digitization of old books and the increase in digital publishing both gather pace, the establishment of a digital deposit at the national level is now a distinct possibility but globalization surely calls for national deposits to be integrated.

As for the establishment of a global, generic right, the UK Braille copyright point I made earlier illustrates well the first part of this proposition. Agencies working with VIPs may secure automatic rights of Braille transcription but they are nowhere near achieving the same right for modified print, audio, digital text, and DVD. The not-for-profit sector cannot spend all its energy mounting a campaign every time a new digital information medium is developed. There is, further, the complication of the platform on which the information is made available: if you achieve the right to audio description of television programs this does not secure the identical right for cinema shows, DVDs, or video clips received on mobile telephones. It will be a long haul to achieve a generic right but there is no real alternative; the indications are that new media and platforms will continue to emerge at a rate much faster than the sector can handle. Paradoxically, perhaps, the global requirement in my formulation will speed up rather than slow down the process; if the sector can think of the world as a matrix of jurisdictions and provisions, then every time a provision is achieved in one jurisdiction it should be translated across jurisdictions. We are dealing increasingly with global publishers so we need to develop a global strategy. This leads quite properly into a consideration of a global production and distribution system for alternative format material—the global library.

THE GLOBAL LIBRARY

Not long ago, to my great delight, the RNIB produced a parallel text version of Dante's *Divine Comedy* with the Italian on the verso and the English on the recto pages. It was, in every imaginable way, a monumental reading experience, produced without a single Braille error; but what struck me later was the fact that the Italian text had been generated in England—it had not been downloaded or copied from an Italian digital source. Was there no digital source, copyright free or otherwise, of the text? Or was it, in the short term, easier (though this is difficult to imagine) to transcribe the original text from scratch rather than editing a download? I daresay that old habits of quality control die hard, as do the entrenched position of copyright holders, but the production of high-quality Braille is too costly and specialist to be devoted to replication. Perhaps the key point of this story, however, is the failure to use automation. We live in a world of global data networks and increasing interoperability but, as I noted in my comments on the less than satisfactory impact of computing on Braille production, automation has not achieved what it should. In the first instance the sector, through a lack of understanding of the print industry, pursued an illusory "Holy Grail" of the printer's digital file which could then be rendered in Braille. This was illusory because books usually are assembled from a variety of printers' files, which contain "flags," and these files are then usually bound into a graphical file format. The real "Holy Grail," for the time being at least, is the construction of pure HTML files which can be rendered

through style sheets to produce different formats of Braille, print, and synthetic audio. If the sector can bring itself to produce common format source files then we will have played our part in establishing conditions for a global library. As I noted earlier, we are dealing in a global market; to take the example of Microsoft which has committed itself ethically and financially to the creation of a global digital library for VIPs, we do not have to convince a Microsoft hydra with its heads in various regional offices. This is, perhaps, just as well because the VIP sector is not well equipped to talk to business. Discussions of rights and their enjoyment, of social services and special education, have traditionally been matters for the public and voluntary sectors; but all this will have to change.

The widest known harbinger of future concerns has been the commotion in the VIP sector caused by the Portable Document Format (PDF). PDF was specifically developed to preserve the content and layout integrity of authored documents; its very being depends upon its ability to prevent tampering. This, however, flies in the face of the need for alternative format producers to manipulate the file—not the text itself so much as the metadata and layout (epigraphia, contents pages, page set-up, headers etc.), the handling of graphics and pictures (tables and image description) and footnotes and indexing. The reason that PDF is important, however, is that it foreshadows the flight from computerized symbolic language strings (like ASCII) to graphics formats. To get some kind of handle on what I am referring to, think of the growth in two key areas: cameras on mobile phones and the downloading of video from the Internet. The implications of these developments are enormous. While the sector is still thrashing around (perhaps that is too vigorous a verb) aimlessly trying to come to grips with the world of digital text, the global digital economy is moving into graphics. When I first sat on the WAI in 1997 the whole emphasis was on text and the textual realization of static graphics (I can still feel the cold silence when I asked what we were going to do about broadcasting over the Internet), but the next iteration of global standards for the Internet will not be set by Microsoft and its ilk but by Hollywood. By 2010 private photographic files and commercial video will dwarf text production (including 20 million blogging sites) on the Internet. This, incidentally, is why Linux is a dangerous side issue; in spite of its shortcoming, Microsoft is the only global player with enough clout to fight the accessibility cause in the face of Time/Warner, Disney, News Corp and the rest.

And so, in summary, there are three factors that need to be brought together in a global library strategy:

- A global generic information right
- A single source file format for alternative format production
- A capacity to anticipate the graphical environment

My final point in this section is that we must learn from our problems in dealing with the age of digital text. The alternative format sector needs

- to develop and own common tools to render text from graphics files into a form that can be turned into a source file, which can then produce alternative formats;
- common templates through which we can render these files; and
- to agree on metadata conventions for alternative format description.

Quite separately—in a production setting I have not so far discussed—the not-for-profit sector needs to make deals with the producers of commercial audio books; the parallel operations of the two sectors are wasteful.

NAVIGATION, EVALUATION AND MIGRATION

I did issue a warning right at the start of this article that I would have to concern myself with the interstices of alternative publishing and production, but at least we are now approaching subjects closer to the heart of librarians. Nonetheless, we will find that it will be difficult to disentangle the three elements in this section which I define as follows:

- Navigation—finding the information that people want that has specific VIP aspects
- Evaluation—according weight and relevance to data that has special VIP aspects
- Migration—rendering digital files in such a way that they are amenable to access by VIPs

In the analog age the first two of these aspects of information were librarian-led; the librarian

- decided where to store the book (navigation via the Dewey Decimal System); and
- advised borrowers on what to read (nonjudgmental evaluation).

Books were usually in a fixed format, however, so there were no migration possibilities.

Navigation

As librarians will appreciate more than any group, other than classical philosophers, the key to efficient navigation is sound taxonomy; this is even more the case for VIPs who cannot rapidly scan vast arrays of classes of data. In the computer environment, screen readers cannot easily convey, either in voice or Braille display, the spatial aspects of data classification, and even where the metadata does not rely upon spatial clues, the choices offered are too many to be efficiently retained by a user who listens or touches exclusively one line at a time. As George A. Miller's (1956)

formulation shows, if the optimum number of choices in conducting a complex search is +7 or -2 there has to be a complex trade-off between classes and "clicks"; the larger the number of classes the fewer the number of clicks and vice versa. Many people overcome this problem by using Boolean search language to define their needs; use of Boolean overcomes some of the problems of poor taxonomy but it depends on an accessible input device. VIPs may need

- a Braille-like input device;
- a qwerty input device with voice feedback (to verify entry); voice in (although this is currently not reliable for extended lexicographies);
- Short Message Service (SMS) (more widely used than qwerty); and
- on-screen customization of the text input box.

Underlying the special problems of VIPs in the field of navigation, there is a deeper question: Should we abandon our twentieth-century near obsession with metadata and rely much more heavily on teaching and learning how to define searches that trigger context-sensitive results? During the last twenty years I have suffered the somewhat depressing experience of working alongside alternative format librarians fixated on metadata when there has been only exiguous data to classify. Now that there is an unimag-inable amount of potentially accessible content we may simultaneously be leaving the age of metadata not only because no body will be able to impose a standard and authors will not conform to a given standard but also because it may no longer be necessary.

This, of course, will not mean that librarians will be left with nothing to do; just the opposite. Although some VIPs may wish to search in a totally autonomous fashion (and that is a legitimate aspiration), many will want the librarian to work with them on search strategies to find what they need. Where the librarian has much greater facility in scanning on-screen options and inputting to a text box, many will wish to moderate their autonomy in exchange for efficiency. In this context, librarians will need to adapt their methodology so that they can collaborate rather than simply working autonomously "on behalf" of a user.

Evaluation

Librarians rightly value their traditional position of being nonjudgmental; but they were protected in this to a large degree by the relationship between the nature of material and its format: books, peer-reviewed journals, periodicals, magazines, "quality" and tabloid newspapers and, for that matter, self-publishing and private views all commanded instant market recognition. Users largely assessed the kind of information they were offered according to its physical presentation. At a more profound level there was, until quite recently, a set of firm cultural demarcations

between, for example fact and fiction, fact and comment, fact and advertising, peer review and self-publishing, and publishing and broadcasting, with their different legislative and regulatory requirements (these will be discussed further in the discussion on digital media below).

Now that these links between physical presentation and content are much weaker in the analogue world—and have disappeared in the digital world—content evaluation becomes much more difficult, but in the case of VIPs such judgments are inevitable and vital if unwelcome. As available content from analogue and digital publishing explodes, as we have noted earlier, VIPs cannot hope to gain access to all of this material, and so choices have to be made. In many English-speaking countries such as the UK, the United States and Canada, book selection for alternative format production has been a librarian function in the context of not-for-profit publishing and analogue Braille/recording when the output was intended either for a broad market or for a highly specific educational purpose. Digital technology has both lowered the cost and the barriers between different alternative formats and, at the same time, it now makes production for small groups and individuals far more viable. This, in turn, changes the role of an accessible format librarian from being an institutional adviser to being an adviser to individuals. In the general library, librarians need to have some basic awareness of what can and cannot be adapted for use by VIPs. The basic point is the same in both contexts, however; VIPs neither have the time (as they access data more slowly than seeing peers) nor the resources (alternative format production of Braille is much more costly than standard print) to be as speculative or serendipitous in their acquisition of content. Left to themselves they will be at the mercy of a variety of limiting factors such as

- their own limited knowledge;
- knowledge within their sector;
- commercial content ranking (in Google, Yahoo, etc.); and
- what they reach first.

The key point about the exercise of this delicate function is that the librarian and the user must be clear what the process is and use it consciously rather than making assumptions that are not mutually understood. For a librarian to exercise a value judgment is somewhat “counter cultural,” but to draw back from this strategy will almost certainly damage the interests of clients. VIPs will only have a limited grasp of the wilder shores of the Web and will need help; this is equally so with broadcasting (see below).

Migration

In the last section, I briefly referred to the need for librarians to know something of what materials can and cannot be rendered into alternative

formats. I encapsulate this process in the term "migration," as opposed to both "transcription" and "recording" on the one hand and "translation" and "conversion" on the other. Migration covers a mass of rendering issues but here are the most important.

Description By far the most important barrier to content migration is that between the picture (as opposed to a technical diagram) and an adequate text rendition. Even where the quality of description is very high, there is always going to be a gulf between, for example, a work of art and its catalog description. This issue is further complicated by the different, more fundamental requirements of congenitally blind people compared with adventitiously blind people and those with residual vision.

Tools The conversion of content between formats through the use of tools is a core strategy for migration. Currently the key tools requirements are conversion between

- word processing formats;
- word processing formats and HTML;
- graphics files containing text and manipulable word processing formats;
- metadata and data customization;
- layout conversion macros for modified print and Braille; and
- legacy content migration (many VIPs have legacy operating systems, programs and data).

Scale-usable Display When a page of text or an image is scaled up or down this presents layout problems. With books, unless the layout metadata is separated from the data, items such as headers appear in the middle of pages; with text and images gross magnification can cause a loss of orientation so there must always be a balance between magnification and orientation. In Braille transcription the general assumption is that the central problem is print to Braille symbol conversion but this is not so; the key weakness of automated Braille translation software is its poor handling of layout and page making. There is, incidentally, a related problem with determining the scale of tactile diagrams where the balance is between fineness of detail and overall grasp.

Lexicality Increasingly with printed media and very markedly on the Web, content layout does not follow the traditional order of vertical and horizontal order (in English from top to bottom and left to right). Automated systems are not always efficient with this problem and it even presents problems for manual transcribers and interpreters.

Parsing The unlimited scope for Internet publishing has led to a less stringent way of presenting material which requires automated parsing for efficient content retrieval.

INFORMATION SYSTEMS

Before dealing with the substance and implications of convergence, it would be helpful to summarize the characteristics of the Internet, broadcasting and telecommunications as they impinge upon library services for VIPs; consequently, this is a somewhat narrow analysis.

The Internet

As we have already noted, one of the main characteristics of the Internet is that its content is indescribably heterogeneous. For VIPs, whose information searching and processing is enforcedly much more deliberative than it is for their sighted peers, this presents both a major opportunity and a challenge. The opportunity is to lift VIP content access out of its traditionally narrow channel which has limited their outlook and made reading a largely conformist, as opposed to a heterodox experience, largely dependent on institutionally mediated alternative format production and regulated broadcasting. The challenge is to direct content access towards the purpose for which it is required.

We need to bear in mind, however, that the Internet is in a state of transition from a largely textual to a largely multimedia carrier. There are three major kinds of data that will soon be carried in bulk on the Internet:

- Commercial video on demand
- Broadcasting
- Personal photography and video

The providers of these kinds of data will inevitably become dominant in defining Internet standards, and those standards are likely to be much more concerned with multimedia transmission than text accessibility, as discussed above at the end of the section on the global library.

Broadcasting

The age of linear broadcasting confined to transmitting on a scarce spectrum allocated by governments is almost at an end. Linear broadcasting has already been complemented by time-shifted viewing through the use of video recorders and now it is being further complemented by video on demand from broadcasters and other commercial suppliers. Initial spectrum scarcity was first radically loosened by the use of cable and satellite broadcasting, and now digital broadcasting is on the horizon. The cost of obtaining permission to broadcast, set up, produce, and transmit content are all falling; and the trend to "escape" all restrictions by broadcasting

over the Internet (TV over IP) will increase. The small number of linear channels has already been replaced by the availability in many countries of more than 400 channels made accessible through an electronic program guide (EPG) which provides access to channels and provides up to seven days of program information. Although the structure of EPGs is almost always much more intuitive than Web site navigation systems, they present accessibility problems and, as they expand, they will also present navigational problems. Broadcasting is also moving much closer to publishing not only in its legal framework but also in the way it "looks and feels" to end users. Monopoly and cartel television, for all its faults, was an important part of common culture and was, in spite of its variety, predictable. Television content is becoming increasingly varied and unpredictable.

Telecommunications

It may well be that in spite of the different histories of the computer-mediated Internet and television- and radio-mediated broadcasting, the technology that will be at the core of our content experience will be the telephone. Telecommunications have been developing more rapidly than any other medium, moving in twenty years to high-speed cellular delivery that can carry video clips and will soon be able to carry real-time feature-length movies. It will, in other words, be the equivalent of a cable-free computer.

For VIPs the telephone, if it can be made accessible, has a number of key advantages:

- It does not need to be found.
- It does not need to be learned anew.
- It provides privacy.

This last factor is often underestimated. Computer and television access for VIPs is even less private than it is for their peers. The telephone is by far the best device to access privately financial, health, sexual and gambling content.

CONVERGENNCE

Hardware

Whatever the ultimate hardware outcome, it is clear that the three components of content access and processing—the information controller (remote control, dial, keyboard); the processor (television/radio set, computer, telephone); and the output device (screen, speaker)—will become separate, cable-free components. Already the television has been split between the remote controller, the screen, and the processor; the hi-fi has been split between the controller, the processor, and the speakers; and

the cellular telephone has been split between the screen/processor and the earphones. The advent of portable screens and distributed processing power (wireless hot spots, etc.) will further granularize the technological production system and enable users to assemble their own components or "borrow" ambient capacity.

The likely outcome of this evolution is that all digital content processing devices will converge into a multipurpose processor and that this device will be produced in a substantive form for the home and in a microscopic form for portability. These processors will be driven by a highly personalized input device, and data will be produced through a highly personalized output device. All three will be cable free.

The implications for VIPs are clear:

- The "collapse" of a variety of consumer electronics devices (TV, CD, radio, PC etc.) will enable more money to be spent per capita on customized devices.
- Accessibility issues will become generic.
- Upgrade disadvantages will decrease.

Digital Data

We have already seen how television (and radio) is moving towards IP broadcasting, and individual publishers and companies will also increasingly adopt graphics and multimedia to dispense their content. ("Multimedia" simply means the simultaneous offering of sound, moving pictures and text—think about television.) All of this data will be available over the telephone system.

To summarize an extremely complex set of issues as they relate to VIPs and library services, the distinction between traditional content services mediated in a nonjudgmental way by librarians (paper-based media and some audio) and analog broadcasting (television and radio) is not reflected in the digital age with its spectrum of digital content production from organizations as large as the BBC to individual Web pages. The library system is going to have to find a way of meeting the challenge of mediating digital information for VIPs.

THE LIBRARIAN AS FACILITATOR

The Digital Divide

Before looking at the positive role that librarians can play in the digital information age as content facilitators for VIPs, it is important to offer some context information with respect to the relative position of VIPs in the digital environment. In spite of the outstanding intellectual and professional VIPs, it is important to recognize that access to content for this

group has always been an extrinsic as well as an intrinsic problem; scarcity of content and the capacity to process it have often combined seriously to disadvantage VIPs. In the emerging digital environment these characteristics have altered slightly in spite of their fundamental accuracy. Absolute scarcity is being replaced by comparative disadvantage. While everybody will have access to much more content in the digital age than at any previous time in history, the gap between VIPs and their peers will inexorably widen even in terms of access to text. An increasingly multimedia society with the focus on the visual, however, will further widen the gap. With respect to the demographic of VIPs, there will always be a small number between the ages of fifteen and sixty in need of a high level of academic and professional support but the majority of congenitally blind and many congenitally visually impaired people will suffer from disabilities in addition to blindness. At the other end of the scale, the massive majority of VIPs will be people over the age of sixty who will increasingly be digitally literate but who may not be able to adapt to emerging trends as comfortably as younger people.

The effective access to information in an attempt to keep this comparative disadvantage to a minimum requires that the right to information be understood in an active way. Not only must the right be practical rather than simply theoretical; it must be effective and, in being so, we may need to make some fundamental changes to the way we think about information access channels.

Facilitation

As I have said earlier as a subsidiary comment to other considerations, the traditional relationship between the librarian and the VIP user has been somewhat "top-down" and at arms-length, but this position needs to be replaced by a conscious, collaborative process. Librarians need to understand better the needs of VIPs, but VIPs also need a better understanding of their own needs. In parallel with this, librarians and VIPs need to understand better the emerging digital environment. No matter how difficult this is going to be for librarians, it is going to be much more difficult for VIPs who will have to come to terms in a highly specific way with their own shortcomings; we are in that most problematic of areas, trying to know what you do not know. VIPs, particularly blind people, are shielded from a great deal of the world that their peers take for granted, not least the febrile and violent world of much of the media, factual and fictional.

This takes us into an area where traditional librarianship is at least contiguous with, but will increasingly overlap with, the roles of teachers, trainers, psychologists and sociologists. For a profession that has gained much

of its respect from detachment, this is a serious prospect. I am inclined to think, however, that as the fundamental role of librarianship is facilitation, these problems of boundaries can and will be overcome.

CONCLUSION

In conclusion, I am often asked, as a user, what I would like to see happening in the next few years. My immediate, not altogether grateful, response is that there are many things that I could have and that I want now such as

- public sector insistence on pure HTML in Web design,
- the regulated accessibility of EPGs,
- better automated Braille translation layout,; and
- better designed hardware such as remote controllers and mobile phones.

But there is a much deeper question that we must all face squarely—with tact but not with denial—and that is the static and moving picture revolution.

If we rank technologies in descending order according to their inclusive impact on VIPs, the list would appear as follows:

- Telephone—substantial increase
- Radio—substantial increase
- Text-based computing—modest increase
- Silent movie—modest decrease
- Talkies—substantial decrease (because of wider penetration than silent movies)
- Television—massive decrease (because, in spite of its use of audio, of its ubiquitous force)

Multimedia will have the same impact as television but image-only content will have an incalculably high exclusion potential, even worse than television.

It is in this vibrant, image-saturated environment that we have to understand and meet the needs of VIPs and, if we are honest, we are not really ready. We must begin with a realistic assessment of what can and cannot be done. As I never tire of saying, not even the Louvre catalog entry can make the reality of the *Mona Lisa* real to a congenitally blind person. Both the seeing facilitator and the VIP have to accept this. At the other end of the spectrum, there is no reason why seeing people should not be able to describe accurately fixed, physical characteristics such as height, proportionality to other known objects, the ordinary and the curious and, to a degree, color for those who can still see enough to appreciate it or who can remember what it means. Not many of us will have the facility of

Proust with Elstir but a structured approach to constructing a curriculum for visual description is not beyond us.

Perhaps oddly, then, when I have surveyed the whole of the converging digital media environment I conclude with emphasis on a human skill—the ability to describe an object in such a way that the description has an impact on the VIP's understanding of the world in which she lives. My overwhelming impression of myself and my VIP peers is that we are almost surreally naive, almost living in a parallel universe. We know the language of "The sky is blue," "The girl is beautiful," "The stars are bright," and "He looks threatening," but what do these really mean to us outside the necessary language of superficial discourse? We know that human beings are shown killing each other on the nightly news and in our crime thrillers but we do not know whether the inability to see this makes us less or more callous. We know that commodities are sold through sex but we do not know whether the deprivation from the ubiquity of sexual imagery makes us more or less able to have effective relations with our partners. We know how we are deprived of incalculable quantities of casual, serendipitous visual data with which our peers are bombarded, but we do not know whether its absence makes us more thoughtful or more ignorant, or perhaps both. Depending on structure as we must, to help us make sense of the world, we do not know how well we understand a world that is increasingly improvisatory, aleatoric. We, who cannot step out of the door without planning, are thought years away from the casual freedom of our friends.

This is not the sort of language that you expect to hear from the VIP campaigner, from the lobbyist, from the ideological egalitarian; but if we do not understand how to face these questions honestly, we will suffer from an even wider gulf between ourselves and the rest of society. Unless blind and visually impaired people are prepared to discuss and understand the depth of their deprivation, society will be severely limited in its capacity to provide sensitive facilitation. As usual, it is not the technology but the people who constitute the main barrier to solving our content accessibility problems, and, not for the first time, the beneficiaries are a greater obstacle to progress than the providers.

At a level that is difficult to gauge, we have been in a state of denial with librarians heroically attempting to be content providers, as well as facilitators on the basis of hopelessly low budgets and outputs compared with the world of print and pictures. On the other hand, VIP users bravely put their notional equality ahead of their actual deprivation. The tact of the former and the vulnerability of the latter make it difficult to see how an honest dialogue can be commenced. But it must, and my suggestion is that we need help from people outside the sector—from authors, artists and en-

gineers accustomed to designing and describing, people who come with no baggage, people who are not over-awed into denial by the gap between the real and the realized. But these people should be brought in to teach us, not to substitute for us, because, in the end, when it comes down to the wire, it is easy to write a list of what we each want other people to do, a list of outcomes for which we think somebody else should be responsible. In the end, however, we—librarians and VIPs—have to take responsibility for ourselves and, above all, to know ourselves.

NOTES

1. See <http://www.w3.org> and <http://www.w3.org/WAI>.
2. On this point I recall that when I was in high school the Braille transcriptions of the Roman poet Catullus were censored.
3. Autolychus is a seller of pirate sheet music ballads.
4. The concept of equivalent price is not limited to the concept of paying for alternative format content at the same price as "ordinary" content; it also embraces the idea of a price discount where a product contains a substantial body of illustrations.

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