

# **Drowning in information, starved for knowledge: information literacy, not technology, is the issue**

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## ***Abstract:***

*The main issue of the so called information age is still being given scant systematic attention. Even if they recognise their need for information, people often lack the understandings and skills to identify, locate, access, evaluate and then apply the needed information. Librarianship is the only profession which is really alert to this issue but has itself allowed a preoccupation with technology to obscure its response to human need, as well as to its primary responsibility for the record of civilisation. All librarians in the 21st century will need to promote the fact that it is good libraries and information literacy, not just information technology, which largely determine who are the information rich and information poor. They will also need to reintermediate through balanced use of analog and digital resources; challenge those who peddle technology as the panacea for the world's educational, economic and societal needs; assert their values and insights; and review constantly how technology in libraries is affecting their users, and the paper records of civilisation, most of which will never be digitised and with which libraries will remain entrusted.*

In their book *Megatrends*, John Naisbett and Patricia Aburdene stress that when a technology is introduced into society, a counterbalancing human response is required. There is little evidence of this counterbalancing in the way the developed world is currently permeating itself with information technology.

For example, in the US schools purchase about 500,000 PCs a year. The Blair government in the UK is intending to spend £1.7 billion in a 'computers for all' effort in which schools, colleges, public libraries and corporations are being enlisted to build a dynamic IT and T industry. Not to be outdone, in Australia the state governments are spending about \$3 billion on school computers with the general aim of ensuring that there is at least one PC for every five students in government schools. The latest state to leap onto the IT bandwagon is Queensland, which in August 1999 joined innumerable other states and countries around the world in aspiring to become 'the smart state' through investment in information technology. Yet all of this expenditure is not complemented by an increased investment in educational and library staffing and staff development. Indeed the opposite may occur.

In other sectors of education, such as universities, any calculation of the total expenditure on information technology, infrastructure, replacement and maintenance would confirm that it is very large, and still growing. All of which begs three question too rarely asked: is all of that investment worth it, is it balanced, and is it occurring for the right reasons?

The answers, from whatever angle the questions are approached, is probably no. This is in the context that, as a commentator on media images observed over thirty years ago, '...technology has turned in upon itself; its corporate form makes it the servant of profits, not the servant of human needs' (Embree 1970 p189).

## Politics and marketing

What formal education, politicians and governments have tended to respond to is the incessant call for more information technology. This has been at great cost and with little demonstrable learning return on investment. The political agenda, driven by astute marketing, has dominated. There has been a tendency to view the key educational issue of the so called information age as information technology, rather than information literacy. There has also been a tendency within education to equate computer or IT literacy with information literacy, and within librarianship to equate librarianship with information management—both propositions fundamentally flawed.

## The age of information

For as Walt Crawford emphasised in a 1999 article in *American libraries* the age of information is a metaphor, an organising principle and an image, and that things go awry when people seize on that image and reshape their views of reality to fit it. He contends that

Ages are what people make them. Technology works when people need and use it. People don't fit neatly into simple models, but people—in their complex, confusing aggregate—determine which technologies survive, which ones become significant but minor niches, which ones linger on without significance, and which ones sink without a trace.

Libraries serve people. Libraries will prosper in the future by serving people's diverse interests and needs, not by asserting that librarians know what people should want and how they should acquire information, knowledge, and recreation. People require a mix of analog and digital resources to serve their preferences and abilities; libraries should honour those requirements (Crawford 1999 p57).

With a similar sense that things are awry Stewart Fist, who contributes a regular column to the IT section of *The Australian*, in the issue of 12 October 1999 wrote

... I believe strongly that social requirements lead technology, not the other way round...Technologists inevitably imagine they are in the midst of a social whirlwind, and endlessly proclaim we're at a turning point in history.

But usually, they're just experiencing a small part of the evolutionary processes that have been progressing steadily since Gutenberg cast moveable type. I suspect that the technology we have already for computers and communications exceeds the applications requirements of about 95 per cent of the population...I don't see any need to flood each home with 10 zillion bits of data every second for the daily cost of breakfast cereal...

Our society doesn't need or want that much information or processing power. It's a bit like water: in the midst of a drought you pray for rain. But not when it sloshes three metres deep through the house...

## The technolust dream

The high levels of expenditure on IT in education is a dream fulfilled for the technolusts of this world, including not a few in the profession of librarianship who really should know better. What, and who, are these technolusts?

To set the educational scene for this discussion, a paper produced by the Centre for Education and Change at Deakin University in 1998 is drawn upon. Entitled *The new information technologies in schools: making plans or options* (Bigum & Kenway 1998), this insightful report warrants wide dissemination.

It focuses on schools, but its observations apply to all levels of education, and parts of the governmental and corporate sectors. It also is relevant to any debate about technology and librarianship. This is particularly true of its conclusion that 'Although reluctant to admit it, schools are clearly caught in an increasingly expensive pattern of consumption of high technology products'. No library which cannot afford to buy the books its users want, because it has to balance 'books and bytes' within an inflexible budget, would disagree.

The study identifies four discursive fields concerned with the information and communication technologies and education. These fields the authors give the labels of Booster, Antischooler, Critic and Doomster.

## Boosters (or Technolusts)

These are the noisiest group. They

- are unequivocal promoters of information technologies in education
- their pronouncements are easily found in the media and are rarely questioned by journalists
- have an unswerving, almost child like faith, in the technology's capacity to improve education and just about everything else in society
- consider it is the duty of teachers, librarians and others to make the best use of these technologies as if they all have intrinsic value
- the technology is seen in terms of replacing inefficient human activity, with such replacements being unproblematic
- have a faith in finding a technical solution to any educational problem, including those produced by using the technology itself
- rarely interrogate their own privileged positions with regard to access to hardware, software and the expertise in using it

- display no concern for, or awareness of, the lessons of history and the fallibility of technological prediction
- see no problems in terms of access and equity since the technology has become so affordable and available—the fact that web usage is growing disproportionately in some groups is not an issue

Yet as Dellit points out ‘the dominant paradigm of the web is the marketplace and...capitalism thrives on inequality. The web is therefore a vehicle of inequality by definition’ (Dellit 1999 p46).

This may be so, although there is a tension with the fact that web users in the general community have developed a fixed notion that content is, or should be, free. No commercial interest, by significant profit, has really challenged that idea on a large scale. The free at the point of use public good imperative which underpinned public library developments commencing in the 1850s is still very alive and well. It is creating a challenge for those trying to control intellectual property and make money out of the web—those usually being not the creators but the intermediaries such as publishers whose motivation is enhancing profit, not that creativity which was the original purpose of copyright laws in 18th century England. The intention of those laws has been perverted over time, enriching not so much authors and artists but publishers and collection agencies. Viral marketing of music in particular is presenting such a challenge. It is good that it is doing so.

When the issue of acquisition of intellectual property is debated, the first person who comes to mind is Technolust in Chief, Bill Gates. However it would be churlish to not acknowledge the large grants of software and cash to public libraries by Bill and Melinda Gates which commenced in 1997. One councillor of the American Library Association castigated these as ‘a down payment on the purchase of public libraries’, but as one commentator has written

...Gates is doubtless sincere in believing that networked computers can be a boon to libraries and education...And it’s naive to suppose that he wouldn’t try to use the gifts to improve his battered public image. Carnegie did the same thing, after all, and he had far more to live down—however questionable the means whereby Gates has enlarged his fortune, he has only figuratively strewn the ground with bodies (Nunberg 1998 p16).

## Technolust motivations

Technolusts have a variety of motivations, among which is a desire to distance themselves from mere mortals by their unique insights. Kirkland and Gorman propose that technolusts

...do not value the culture of knowledge and use money and technology to feed self importance and feelings of power. Those who feel insufficiently powerful can come to see technology in terms of personal aggrandizement, to want control over it in order to control others; they may consider anything new to be desirable because it is new and not because it is useful...Library administrators who value technology above the collections they administer, and who find staffs less docile than machines, want more machines and fewer people...Education technocrats give computers to the teachers and say ‘they will help you teach’ but what they mean is ‘computers will teach in your place and I’ll have money to buy even more technology’. Library technocrats say to librarians and staff ‘Computers will help with your jobs’ but what they mean is ‘Technology will eventually replace as many of you as possible (but not me) and I’ll have more money to spend on technology (Kirkland & Gorman 1999 pp608-609).

## Technolust in libraries

Technolusts tend not to be people persons, which happens to be a characteristic of some attracted to the profession of librarianship. It is thus not surprising that the profession would number some among its ranks those who are technolusts, at the cost of denying the core values and breadth of their profession. Technolust may well, too, be a comfortable route for the intellectually or ethically

lazy, its narrowness an escape from grappling with the myriad wider issues of 21st century librarianship.

In this context Australian library educators, and their institutions, have something to answer for in their shortsighted predilection for dropping the 'L' for Library from course content, course titles, and departmental titles. One is hard pressed to now recognise those programs as having aspirant librarians as their core market. This is something which a recent thought provoking internal review paper by Professor L Amey for the University of South Australia has shown is more extreme in Australia than in any other country. He also provides evidence from the US that those schools eg Berkeley which have gone to the technological extreme are struggling for students, and those eg San Jose State which have a more balanced program are doing very well indeed. One consequence is that in areas such as children's librarianship the US is needing to look to Canada for staff. As was noted in the introduction to the Spring 1999 issue of *Library trends* 'Most people go to library schools...to become librarians but, increasingly, their education does not equip them to do what they want to do' (Kirkland & Gorman 1999 p610).

That same issue of *Library trends*, which is entitled *The human response to library technology*, should be mandatory reading for those library technologists who have forgotten that the mission of libraries is to 'collect, preserve, organize and disseminate...the records of mankind and to provide human services based on those records' (Crawford & Gorman 1995 p183). Significantly, in an afterword in the issue, that proponent 25 years ago of the transition from paper based to electronic based communication, F W Lancaster, admits that at the time he could see no disbenefits to this shift. He now does.

Consider what he says

Because technology in the world at large has brought disbenefits as well as benefits, it is reasonable to assume that the same applies to the library situation. Unfortunately, too many librarians have been completely uncritical of information technologies...In general the library profession has greatly exaggerated the benefits of technology, especially in the area of subject access.

... many librarians seem to assume that more access means better access...Studies of the users of information services, going back some thirty years or more, have consistently shown that what they really want is access to the information of highest quality. They want tools or people capable of separating the wheat from the chaff. They want quality filtering. The profession seems to have lost sight of this...In its love affair with technology, the profession is losing sight of its professional ideals, of the ethic of public service (Lancaster 1999 p807).

Lancaster concludes with the words 'it is now possible to attend a conference of libraries that sounds more like a conference of the computer industry. Indeed, one can attend such a conference without the words 'user', 'patron', or 'customer' occurring at all (Lancaster 1999 p808).

VALA conferences over twenty years have been culpable in this regard but there has always been a leavening of exploration of user needs and broader issues than just making technology work in libraries. This is to the credit of the program committees over those years. Even Online & Ondisc, at its last two conferences has moved to set the technology more in a human needs context.

Technologist, of course, is not a new phenomenon. Technologists have often been confounded by events, typically know little about history and humankind, and may fail to recognise that one technology rarely completely displaces another. It is salutary to consider an observation made in a published booklet in 1937—over six decades ago—by the president of the Libraries Board of South Australia. At the time South Australia had no free local public libraries. He said that 'Other countries are now paying dearly for free libraries, which are meeting with much the same competition'. The competition to which he was referring was 'the wireless', 'modern enlarged newspapers and magazines, and talkies (movies) with their never ending sessions'. The result he

said 'is that books have to take a second, third and fourth place where formerly they were the first' (Langham 1937 p11).

In 2000 that president would probably happily add the internet, CDRoms, home PCs, DVDs, video shops, super bookstores, amazon.com, ebooks, computer games, cell phones, free to air and satellite and cable television to his reasons for not funding a public library system accessible to all citizens regardless of their circumstances. He was wrong in 1937. He would be equally wrong now.

## Antischoolers

According to the Deakin University study, antischoolers are a subset of the technolusts. They use their analysis of the relationship between institutional educational and information and communication technologies to propose the demise of institutional education itself. Were it to occur even in part, this would provide a very wide window of opportunity for public library development especially, although a window is already being presented by the worldwide lifelong learning impetus since the publication of the 1996 Unesco Delors report *Learning: the treasure within*.

### Antischoolers

- conceive a utopian, high technology educational future, with at one extreme no educational institutions at all
- may see educational institutions as supporting a monolithic and restrictive curriculum model of education compared with what the internet can offer
- are critical of top down command systems of educational bureaucracies and large institutions
- argue that as businesses become more concerned with the production and distribution of knowledge they will become unwitting competitors to educational institutions which have been unable to adapt to the demands of technology based change
- the home will be a key site for delivering entertainment and information
- easy access to broadly based digital information will be sufficiently commonplace to allow, if not to trigger, the decline of formal education
- there will be no schools
- universities will be reduced to small, highly specialised, privately subsidised research institutions
- just in time online lifelong learning is a high industry, delivered to students at any time anywhere
- teachers become private tutors who work for individual, or consortia of, students. Education is totally negotiated

## The critics

This diverse group is the one which should claim the library profession. It is critical of the rush to technologise education. It is sceptical of many of the claims advanced for using information and communication technologies and draws sociocultural analyses of technological change to support its concerns. Critics

- distinguish between what a computer can do and what it ought to do
- challenge the taken for granted assumptions about the use of computers
- have social justice concerns about access to and use of technology. They predict information rich and information poor institutions and students
- are concerned about the technologies as technologies of control by the state over institutions

- turn technolust givens into uncertainties and raise questions about the assumptions underlying their proclaimed benefits
- reject the comparison of learning outcomes that purportedly derive from the use of different media
- argue that technology amplifies some ways of knowing and diminishes others
- seek a balanced assessment when IT is used in any situation
- see technology as a resource for learning but also as a context for learning and about which learning must occur
- are not simply negative but are constantly alert to dilemmas and dangers

Earlier, it was suggested that the Australian media has failed to ask needed questions of the technolusts. There has been little probing of exactly what real learning and other benefits will flow when every Australian school has at least one PC for every five students. Assertions, about what in reality is an expensive act of faith, have been too readily accepted at face value. One newspaper has, however, been a laudable exception.

At the end of 1998 *The Australian* on 5 December precipitated a debate about IT in education. One commentator (Bigum, a Critic) stated

The end of the millennium and the enthusiastic promotion of new information and communication technologies makes for a heady climate in which to make predictions about education in the new century.

Since the commercial availability of affordable computers some twenty years ago, schools have been subject to predictions of impending revolution, most of which are little more than unpaid industry public relations. There is nothing wrong with telling ourselves stories about how the world will be. But it is equally important to ask about the critical assumptions that underpin such predictions.

The demise of schooling as it is practised has been a consistent prediction by some. The assumptions that typically underpin this prediction are based on limited understandings of the social adoption of technologies. They make crude equivalences between information delivery and teaching. They ignore the enormous infrastructure and investment associated with schooling, and demonstrate poor understanding of schools as powerful social technologies.

By contrast, Dale Spender, declared in the same edition of *The Australian*

Every student needs a computer. You can't be a full member of an information society unless you have one. While it might seem a tall order to provide everyone with their own terminal, it's the only way every Australian will have a stake in the information future.

Last century we decided everyone should have access to books, but that not everyone could afford them. So we came up with the public library. This is how we did equality with print. But we are definitely not doing it digitally.

*The Australian* received many letters, mostly from parents including some involved in the IT industry. They were overwhelmingly critical of the technolusts. The newspaper's editorial of 14 December 1998 concluded

The maxim that children need computers at school is a marketer's dream, tapping the fears and hopes of parents and the desire of governments to appease them. Research and experience are yet to identify whether or how children learn different and important cognitive skills by using computers...

When dividing the finite funding pool for education, governments must not be driven by an assumption that technology is by definition the best investment for children. Computers must be examined like, and weighed against, every other educational resource.

More recently, on 11 September 1999, *The Australian* highlighted under 'Schools are being pressured to acquire information technology to the neglect of learning', comments in the introduction of a Unesco report *Class acts* (Unesco 1999), a tribute to teachers around the world.

The comments stated that information overload and the internet had blurred the vision of education, which should be about the full development of the human personality, and developing understanding and values. The report is quoted as saying 'In these days of globalisation and information highways, this concept of education is being overshadowed by the notion that it is about developing skills for accessing and processing information'. If this is indeed true, those who have been promoting information literacy have had more impact than even they would wish for. It is more likely, however, that the comment was focused on just IT and the internet.

## Doomsters

As the last of its four categories, the Deakin University study identified doomsters as the unqualified opponents of the information and communication technologies.

They see much damage to society and education arising from uncritical acceptance of new media forms, ranging from television to the internet, or even what emerges from a merging of the two. They are closest to the Luddites of 19th century industrialising England, and

- ask why replace perfectly good practices and institutions with those based on technology
- are concerned at what they see as a deskilling of students who use calculators, spell checkers and other aids
- consider the internet poses important questions about how students are taught to select and judge information from a source in which the quality controls of print based resources do not usually exist
- consider that what is confused is the amount of information that is available and the amount of information that a person can actually use
- see the digerati as the glitterati—as shallow people tied psychologically to their PCs on which they are content to unproductively 'futz' away their days

## Information overload

That second to last issue, about the amount of information a person can use, hones in on the increasing experience by individuals and organisations of information anxiety, overload, and data smog. This has been largely engendered by the information and communication technologies, and email in particular. However it has been in prospect ever since the development of cheap paper, fast printing presses, the penny post, higher literacy levels, railways and telephony in the 19th century.

Numerous commentaries and reports drawing attention to overload have appeared. For example, in 1996 Reuters published *Dying for information? An investigation into information overload worldwide*, and in 1997 *Glued to the screen: an investigation into information addiction worldwide*. These confirmed that business people surveyed worldwide were experiencing high levels of information anxiety, much of which they could have minimised by investing in a librarian. This is just what seems to be occurring in at least the US today. Under the banner 'Demand for librarians hits all time high' an item in the US *National business employment weekly* in September 1999 affirmed

Knowledge managers, information specialists, chief answerists, knowledge navigators. They're more commonly known as librarians. As corporations rely on information to keep ahead of the competition, demand for these professionals is escalating.

Companies are experiencing data smog...They're overwhelmed.. They need individuals who can cull through information and help them make informed decisions to stay competitive.

The 1998 Reuters report *Out of the abyss: surviving the information age*, reviewed the responses of 1072 company executives in eleven countries. It concluded

...that while information overload is still a severe problem for many across the globe, different countries appear to be at different stages in the information cycle.

What we are now witnessing is the emergence of a new era of the information age where individuals and businesses are rejecting multiple sources of information in preference to a single source that they believe will actually give them all the information they need...It is a question of survival of the fittest...

That last sentence might have read more accurately as 'Survival of the best informed' because it has always been the case that organisations with any sense of a long term future wisely invest in their systematic information gathering, organisation and analysis, and reject serendipitous and ad hoc approaches. Consider, for example, that federal and other politicians have better access to library and information services than do most of those Australians they represent.

The 1998 Reuters report had one other interesting finding, that 81 per cent of respondents felt that schools should do more to prepare children to deal with information. In other words, to become information literate. Of equal interest would have been their response to the questions 'How did your education prepare you to deal with information' and 'Do you consider yourself information literate ie able to recognise the need for information, to know how to identify, locate and access the needed information, and then evaluate and apply it'.

In similar, but more populist, vein to the Reuters reports *The Weekend Australian* 4-5 September 1999 carried a lengthy item entitled 'Too much of nothing'. This stated 'Gutenberg's press...catalysed communication. No one advocates a return to pre-press days but, as we swirl in a tsunami of electronic accessibility, most of us are barely treading water.'

The article quoted a number of 'experts' to sustain the case.

In solving the information problem, we have created a new problem: information glut, incoherence and meaninglessness...our technological ingenuity transformed it into a form of garbage and ourselves as garbage collectors (*Neil Postman* NY communication guru)

We now skim the surface rather than dive deeply. And most of what impacts on our consciousness is essentially irrelevant to us (*John Carr* Communication Studies, UTS)

Pieces of information are slotted into the mind in chunks. When the information is retrieved, it tends to be sourceless and often not in context (*Peter Reid* Marketing, Monash University)

The secret to survival lies not in knowing itself but in knowing how to access knowledge, in how to develop research capabilities (*Hugh Martin* Media Studies, La Trobe University)

Of that last observation, Dr Johnson said as much over two hundred years ago in stating 'Knowledge is of two kinds. We know a subject ourselves, or we know where to find information about it.'

Librarians know too well that simply providing the technology does not mean that people can use it. Functional illiteracy alone is a significant barrier for about 10 per cent of the population. Who would not agree with the following?

Something funny happened on the road to the digital library of the future...Far from becoming keepers of the keys to the Grand Database of Universal Knowledge, today's libraries are increasingly finding themselves in an unexpected, overloaded role. They have become the general public last resort providers of tech support. It wasn't supposed to be this way...(Corcoran 1997 p1)

# Three issues for the library profession in the 21st century

There are three critical issues for education and society in the 21st century to which the profession of librarianship is uniquely placed to respond, and to which it must respond in the context of an unqualified commitment to intellectual freedom. The first issue is information technology. The second is information literacy. The third is information service.

## Information technology

The starting point for an examination of where librarians should be in the information technology discourse is that

- Librarianship is not synonymous with information management—it is much broader in principle, practice and potential. Librarians are more than information professionals, however that term is defined. This is true of the librarians of educational institutions, it is true of public librarians. It should also be true of special libraries and librarians, even those who persist in using the role limiting terminology of ‘information centres’, and ‘knowledge’, ‘ideas’, or ‘information’ managers. It is noteworthy that some special librarians, especially within law, are now accepting a responsibility to help develop the information literacy of their clients. Every library, and every librarian, has an educational responsibility when they interact with their clients, which no other profession can meet.

Many people would now see libraries as innovators in the application of the information technologies, and librarians as exponents of their use. Not a few people would have had their first contact with a computer in a school or public library, for example. Librarians should take pride in the fact that they were among the first to recognise the potential for information technology, especially the web, to extend access to information resources and enable scholars to display, find, modify and store information. Librarians have been searching online for 30 years, and VALA conferences have been held for the last two decades. Librarians were also very early in learning how to use, evaluate and link web resources. And given the frequent inability of the IT industry to deliver promised goods, libraries on the whole have made effective and responsible use of the funds they have received for management systems and other technology.

Their responsibilities have now never loomed larger because information, writ large, is the preoccupation and currency of a dominant part of the developed world. Librarians see and observe how people come to and use that currency. Data and information is also the currency of the internet, and there are no professionals in the world better placed, more able, or more client focused than librarians to advise and educate on the reality of the internet and information technology, or to challenge the rhetoric of the technolusts and the marketers.

## Information literacy

The term information literacy is usually credited to a nonlibrarian, Paul Zurkowski. He used it in a 1974 report entitled *The information service environment, relationships and priorities* (Zurkowski 1974). As Bruce (1997) notes

Rapid and widespread acceptance of the concept of information literacy since the release of the ALA's 1989 final report has led to renewed emphasis on information literacy in all education sectors. Information literacy is making a significant impact on educational curriculum as the relationship between information literacy and autodidactics that is ‘the independent pursuit of learning within formal institutional structures’ is recognised. Today the meaning of information literacy has broadened considerably and the term represents a convergence of interests in the need to educate those who must live and work in our information society.

Because of that broadening, information literacy is now much more than a 'library' issue, but it remains a principal concern for librarians. It is they, particularly teacher and other educational librarians, who can take much of the credit for placing it on the educational, governmental, societal and democratic agenda for the 21st century. This has occurred because the equity in information accessibility and utilisation imperative of librarianship is strong, and must remain so. Other professions, journalism possibly excepted, tend to have a stronger imperative to protect their exclusivity and pockets by restricting the information horizons of their clients—not so librarianship.

One commentator has stated well that

The ability to access and use information effectively is a key enabler for society as a whole. It allows us to do three vital things. Which of these is given greater priority depends on the prevailing political ideology. First, it is a prerequisite for participative citizenship. Secondly, information literacy is required for the production of new knowledge, on which the future economic success of the country depends. Thirdly, it is needed to solve global problems which threaten the planet and the survival of civilisation (Butterworth 1996 p49).

Promoting information literacy, both formally and informally, thus has to be a pervasive concern of librarianship in 21st century society. This is *not* just for educational librarians. It is also for special librarians in their day to day client service provision. And it is also very much for public librarians, because if they do not help to address the issue for the Australian people at large, who will? Assuming a responsibility for fostering an information literate citizenry is a new concept for public librarians, but a number of public libraries in Australia already show evidence of doing so.

The first object of the Australian Library and Information Association is

To promote the free flow of information and ideas in the interest of all Australians and a thriving culture, economy and democracy.

That 'free flow' is of little utility without an information literate citizenry, so promoting and facilitating an information literate citizenry—whether at the student, public, or corporate level—is a key professional responsibility of librarians.

It is thus something which should be central, together with intellectual freedom, to teaching in library and information studies professional programs.

However this does not imply that anyone should be advised or taught that they can become completely self sufficient in information seeking and its application. As Butterworth states

The use of such intermediaries should be built into formal instruction on the research process, so that students grow up with a high expectation of the type of service they can expect from libraries... (Butterworth 1996 p54).

## **Information services**

The above use of the word 'intermediary' may well prompt the response that because of IT and telecommunications the world is moving away from intermediaries in a whole range of activities such as banking, stockbroking and tourism. Disintermediation, 'the buzzword from hell', simply means dispensing with the middleperson. Viral marketing of music on the web is one variant. Booking travel on the web is another.

It is true that there is a popular misconception that all information can be found on the web with ease, reliability, and that it is free. It is also true that users may be satisfied with inferior outcomes from information searches on the net, just as people have often been satisfied with what we would judge to be inferior libraries. As Stephen Downie comments 'Recent television advertising

campaigns by IBM, AOL, Microsoft and others, all add to the public's perception that the only requisite intermediary comes in the form of a mouse' (Downie 1999).

To which the counter is what Negroponte, the *Wired* columnist, calls 'reintermediation' (Negroponte 1997), the provision of individualised, value added and well promoted service. Some parts of the commercial world are well awake to this. Witness two national newspaper advertisements in 1999. The one under a forest of banners bearing **i** for information also carries the quotation from *Megatrends*, that 'We are drowning in information and starved for knowledge'. The full page advertisement then states

*To benefit from information, first you have to find it. Then interpret it. Then act. PeopleSoft Enterprise Resource Planning software helps you plan, measure and improve. Enterprise-wide, world-wide. Fast, and flexible. Tailored to your world. www.peoplesoft.com*

The other full page advertisement is from Merrill Lynch Mercury Asset Management. Under a photo of masculine fingers over a keyboard, the headline is *Not everyone can turn a wealth of information into wealth*. The text reads

*Never before have investors had so much information at their fingertips. But information is useless without the time and expertise to turn it into wisdom. It takes more than a PC to do that. It takes expert people. At Merrill Lynch Mercury we have a formidable team of fund managers. They are committed to gathering extensive information, completing the indepth analysis and making the most informed decision, with one simple aim. To help investors achieve their financial goals.*

Substitute 'people' and 'librarians' where appropriate in the above, and it would fairly describe what many special librarians and others do already—but who knows about it? How good it would be if the profession, through the new ALIA, gained the support—and cash—of the library and information services industry for a campaign to communicate the fact that 'It takes more than a PC'.

The internet and the wealth of information resources about which librarians are knowledgeable offer a window of reintermediation opportunity for a profession with the values and human service imperative held by most librarians. However there is a need to raise the performance, and expectations of quality, in both information outcomes and library services. This is an educational challenge for the profession, and its allies.

If these three issues of information technology, information literacy and information service are sustained—within the context of an unqualified commitment to intellectual freedom—as core issues for analysis, debate and balance within library education in the 21st century, our library educators will serve the profession, and the community the profession serves, well.

For that community, at all levels, will need every assistance in keeping afloat in a perpetual tsunami of data and information. It will also be welcoming of a profession able to demonstrate that it can help feed the eternal human quest for knowledge and understanding from its continuing position as responsible custodian of both the analog and digital records of civilisation. No one in the 21st century need drown, nor starve for knowledge, if the educators and librarians get the balance between technology and the human response to it, right.

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