# Beyond information: the academic library as educational change agent

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**Abstract**  Mass higher education, flexible delivery, student centred and problem based learning, information literacy and other graduate attributes, are accelerating curricular and pedagogical change in progressive universities. Academic librarians need to partner academic teachers and others in that change, an impetus for which in Australia and New Zealand is the *Information literacy framework* and the Institute for Information Literacy. With their commitment to the free flow of information and ideas, they must also demonstrate a commitment to education which liberates, and should be willing to be held to account for graduates who are not able to function effectively in the complex information environment of the 21st century.  The mission of the university library must therefore move beyond excellence in information identification, acquisition, organisation, access and skills development. It should be described and asserted in educational, not informational, terms.

There is an adage in English that if something is not broken do not try to fix it.  That philosophy is pragmatically Anglo Saxon, and it can too easily become a rationale for lack of product improvement and a failure to pursue excellence.  This possibly explains why Germany makes better cars than England, and why the car of choice for discerning Australians is an Audi, BMW, Mercedes or a Porsche, rather than a Jaguar, MG or Rover.

So what has this, doubtless contestable, observation to do with the condition of universities? Something as complex and diverse as higher education can never really be described as broken, but it can certainly be improved in all aspects of research and research education, teaching and learning, mass access to it, how it is funded, and what its outcomes are in an increasingly competitive international environment.

Germany is clearly no exception to the higher education conundrum faced by many developed countries, including Australia and New Zealand.  The higher education section of *The Australian* newspaper 14 January 2004 contained an item evocatively headed

> *Achtung! Bildung* is collapsing—German universities are failing to deliver, and despite protests from students and academics, reform may prove to be the only solution.

But what, exactly, are universities failing to deliver?  Critically, it is a planned undergraduate educational experience appropriate to the information intensive 21st century.  Students need to learn the pathways to knowledge but may well, at the end of their first degree, currently have acquired little more than clumps of loosely connected and rapidly outdated higher order

content.  In other words, much of massified higher education is neither high nor particularly educative, and provides a poor longer term return on investment of public and personal funds, and individual effort.

The core proposition of this paper is, therefore, that curricula, pedagogy and assessment can no longer be the sole province of individual academic teachers, and that university teaching must become a disaggregated team effort. In that disaggregation academic librarians should engage directly with academic teachers and others to make their own distinctive contribution to students learning those pathways to knowledge, through the development of their information literacy.

The premise on which this proposition is based is that librarians have always been educators because the most enduring and flexible agency for learning is the library, organised for well over two millennia—and predating the first universities by well over one millennium—to provide self paced and self selected transmission of knowledge.  Or as the essayist Thomas Carlyle observed in the 19th century 'The true university of these days is a collection of books'.  The academic library, as a force for learning within an educational institution is uniquely placed to be a proactive partner in the evolution of the 21st century educational paradigm, something emphasised by Clifford Lynch, the Executive Director of the Coalition for Networked Information in his recent article 'The new dimensions of learning communities'.[1]

In my paper today, the following are explored
- What is the key issue?
- What are the imperatives for change?
- The importance of information literacy
- The Australian contribution to information literacy
- Who owns information literacy?
- Developing the academic teacher/academic librarian partnership
- Information commons or learning commons?
- Developing the librarian/librarian partnership
- Vision and assertion
- The winds of educational change—how do they blow?

**What is the key issue?**

Academic librarians, more than perhaps other academic educators, continue to experience at grassroots level the unsatisfactory outcomes of programs and pedagogies which assume that students are, by some innate process, information literate.  As the professor of education at the University of Queensland, Ernest Roe, pointed out nearly 40 years ago

> In general, 'promoting the efficient use' of resources has been nobody's business.  Even where there has been active concern, significant gaps persist.  A teacher may urge his students to use the library resources, provide book lists, set work which effectively directs them to the library, but takes no interest in how they use the resources he is so keen for them to use, or in whether they have the necessary skills to do so… A librarian may be actively involved in helping, in actually training, users to be skilful in search strategies, be most eager that the resources are in every sense accessible to students; but regard what students do with the 'right' book when they have located it as none of (their) business…[2]

Academic librarians can no longer responsibly disengage from why students want the print and digital information and resources to which libraries can now so readily provide access.  Nor can they disengage from whether those students have the capacity to apply that information well, and to what use they put it.  Consequently, they should be prepared to question curricula, pedagogies, and assessment.

The educational role of the academic library must be 'the tail that wags the library dog', and all of its activities changed and evaluated in line this perspective. As with their academic teaching colleagues—many of whom, like academic librarians, have no formal training as educators—the fundamental concern of academic librarians is with *learning outcomes*, not information supply and access.

Engagement in the total educational process axiomatically means stronger engagement with program and curriculum development, learning design, pedagogies and assessment. This implies engagement with, and contribution to, the scholarship of teaching and learning by both academic teachers and academic librarians.[3]

**What are the imperatives for change?**

There are other imperatives for educational change. Dr Samuel Johnson, the 18th century English lexicographer and savant, observed that

> Lectures were one useful, but now, when all can read and books are so numerous, lectures are unnecessary

He would probably be surprised to discover that in the 21st century the pervasive pedagogical approach in universities is still the teacher as authority transmitting higher order content and opinion through lectures, or variations on them. He might even be surprised that at thousands of conferences held in the world each year, their speakers do precisely the same. We are replicating at this conference the inefficient way by which most of us learned. This, as Patricia Senn Breivik has pointed out, is a major reason why it is proving to be hard to turn education around.

Yet, as Twiss points out

> *An overwhelming body of research shows that students do not learn effectively from lectures, and testimony from the field corroborates the literature.* What's wrong with the lecture? The lecture method is a 'push' technology. It treats all students as if they were the same, as if they bring to the course the same academic preparation, the same learning style, the same motivation to learn, the same interest in the subject, and the same ability to learn.[4]

Or as Dr Senn Breivik has stated about this 750 year old style of teacher exposition

> Students carry away in their heads and in their notebooks not more than 42 per cent of the lecture content, but when students are tested a week later, without the use of their notes they can remember only 17 per cent of the lecture material… how much are students really going to remember a semester later; a year later; by the time they graduate… Furthermore, with all the statistics that we have about how rapidly information is changing, what good is that odd part of a percent that students are going to remember when they graduate, because probably that is the very thing that has been outdated. So education as usual cannot work.[5]

As Kirkpatrick points out

> The traditional community of the university is structured around notions of lectures, tutorials, and labs controlled by teachers who select groupings, the types of interactions that will occur, who interacts, and with whom. New learning technologies suggest new groupings, new communication patterns, new interactions and newer structures.[6]

The article in the higher education section of *The Australian* newspaper 14 January 2004, to which earlier reference was made, commented about the challenges facing German universities, that

> … there is a disconnect in Germany between the lip service paid to higher education and the reality of its academic institutions. In this land of philosophy, *Bildung* is treated as a value that should be free for all. But universities are the first to suffer budget cuts. Lecture halls are overcrowded…professors unmotivated, and degrees obsolete—true higher education often starts in the first job.

A part riposte to that commentary, if its reference to overcrowded lecture halls is not exaggerated, could be—knowing what we do about the ineffectiveness of most lectures—is for universities in Germany to abolish all lectures, eliminate lecture halls, and invest in a better educational way.

The change imperatives for universities also include massification—the shift from elite to mass access to undergraduate education—values, standards, plagiarism and funding. A particular conundrum is e-learning to which 'teachers and learners have responded in a variety of ways from enthusiastic adoption to skepticism and mistrust'.[7]

Also a reality is what was recently well described by Professor Denise Bradley, the president of the University of South Australia

> Too many programs still are little more than a sometimes random accumulation of courses which meet staff interests rather than a planned educational experience for students. With mass higher education and multiple entry pathways it is now critical that we accept that higher education is much more than the transmission of higher order content. It is a process of induction into ways of using knowledge underpinned by values about acknowledging the contributions of others to your theories and solutions.[8]

Perhaps the only university characteristic which has been maintained throughout their existence is the centrality of teaching and learning in a curricular context. As Reid observes

> Without structure, sequence and compilation we can have learning, we can have teaching, we can have education but we cannot have curriculum. And structure, sequence and compilation are all universal notions that require the intervention of organisations and institutions to establish them in the public domain.[9]

Maurice Line, the British former university librarian and Director-General of the British Library asserts that
- the division in universities between teaching, the library, ICT and educational technology is increasingly meaningless
- the importance of learning how to learn and of information literacy should lead the partnership between teachers and librarians
- the entire university should be restructured to meet societal and individual needs[10]

He is right on all three counts. However the reality is that comprehensive and rapid change is very difficult to achieve in the complex aggregations of narrow interest which characterise large, often geographically dispersed, universities today. The notion fostered by the language of managerialism that everything can, and should, be managed, is an illusion when applied to universities. Presidents of universities and national governments may think they can direct and manage change in universities. At best they have influence, not power, when it comes to systemic change. University librarians sometimes feel the same way about their libraries.

Nonetheless, although the speed may be glacial, progressive universities are changing. Teaching and learning are being redefined through student centred learning, attention to graduate attributes, and new interactions capitalising on improved information availability and ICT.

As Peacock summarises well,[11] higher education in Australia, New Zealand and elsewhere, is undergoing change prompted by

- changing student cohorts in terms of numbers of enrolments and demographic diversity, including an ever greater proportion of adult learners and international students
- a growing research base in higher education student learning, effective teaching, and the development of teaching practice in tertiary education
- the disaggregation of academic work into the scholarship of discovery, integration, application and teaching, as posed by Boyer
- new technologies, and their application to the administrative and teaching functions within tertiary institutions
- the combination of the disaggregation of academic work and new technologies stimulating the demise of the lone teacher approach to curriculum development, delivery and assessment
- increasing demands for, and greater emphasis on, performance, professional standards and public accountability in higher education
- curriculum change which demands different pedagogical approaches, characterised more by active learning and vocationalisation of the curriculum and less by theoretical discipline background
- the professionalisation and scholarship of teaching in higher education and increasing specialisation of academic work
- growing emphasis on assessing the learning outcomes of courses. This demands a more comprehensive view of course structures than that which reflects the interests of departments or individual academic staff
- an integrated approach in which vocational competencies and generic skills are assessed in the context of whole work tasks
- growing emphasis on generic and employability attributes such as information literacy, and other attributes critical to a capacity for lifelong learning.

In essence, functional silos are being very gradually challenged by a more seamless culture of collaboration in teaching and learning.

**The importance of information literacy**

Universities should be places where information and ideas flow freely and where truth is sought, disseminated and defended.

The issue for them to consider when identifying their outcomes and investment priorities are what attributes and qualities are required of individuals to contribute to thriving national and global cultures, economies and democracies. This is providing the momentum for the delineation of graduate attributes, attributes which invariably specify, or are infused with, information literacy.

Librarians are strongly committed to social inclusion through information equity, but understand that achieving this requires much more than just expenditure on ICTs. In an information intensive society they recognise the most critical divide is between those who have the understandings *and* capabilities to operate effectively in that society and those who do not—and that this constitutes the information literacy divide, of which the so called digital divide is one aspect. They also consider that more attention must be given in institutional education to how students recognise their information need. An iteration of this is to be found in the Australian Library and Information Association's 2001 *Statement on information literacy for all Australians*. It is essentially an expansion of the observation attributed to Thomas Jefferson that 'Information is the currency of democracy'. Clearly information alone is no democratic guarantor. The critical complement to it is people who are information

literate—able to recognise their need for information and then able to identify, locate, access, synthesise, evaluate and apply the needed information.

> The first object of the Australian Library and Information Association (ALIA) is 'To promote the free flow of information and ideas in the interest of all Australians and a thriving culture, economy and democracy'.
>
> A thriving national and global culture, economy and democracy will be advanced best by people able to recognise their need for information, and identify, locate, access, evaluate and apply the needed information.
>
> Information literacy is a prerequisite for
> - participative citizenship
> - social inclusion
> - the creation of new knowledge
> - personal empowerment
> - learning for life
>
> Library and information services professionals therefore embrace a responsibility to develop the information literacy of their clients.
>
> They will support governments at all levels, and the corporate, community, professional, educational and trade union sectors, in promoting and facilitating the development of information literacy for all Australians as a high priority.

The above statement readily translates to a global context. Its core message should be embedded in the mission, curricula and pedagogy of all educational institutions.

Indeed, it is surprising that no university seeking a distinctive vision—as they all do—has used a lead statement like 'Educating for the new world of information' and then focused its mission, curricula, pedagogy and assessment around that vision. None of the three silos of formal education—primary, secondary, tertiary—demonstrate much connection about this issue, any more than they connect about other educational issues. They do not demonstrate that they have really grasped the implications of the information intensive 21st century, and of the difficulty of an information illiterate person being attractive to employers, able to be a lifelong learner and a full participant in society.

**The Australian contribution to information literacy**

However there has been in Australia, and elsewhere, uneven infusion of information literacy development into teaching and learning in secondary schools, and more recently its universities and community colleges. Australia has taken several other librarian-led information literacy initiatives of note

- five national information literacy conferences[12]

- the publication of Dr Christine Bruce's award winning book *The Seven faces of information literacy*—a seminal text on information literacy[13]

- the publication of *Information literacy around the world* edited by Candy and Bruce[14]

- the development, as an initiative of the University of South Australia, of two editions of national information literacy standards, an improvement on the US standards of 2000. The 2001 first edition of the *Information literacy standards* is being used already in a wide range of Australian educational contexts, has been endorsed by the academic and

teaching and learning committees of a large number of universities, has been translated into Spanish and Bahasa Indonesia, and is being used in Ireland. Its comprehensive introduction is particularly useful in establishing information technology 'fluency' as a subset of information literacy.

The second edition will be published in February 2004, and is entitled the *Australian and New Zealand information literacy framework: principles, standards and practice*.[15] Of particular value in this new edition are two papers. One is by Lupton, entitled *Curriculum alignment and assessment of information literacy*.[16] The other is *Standards, curriculum and learning: implications for professional development* by Peacock.[17]

The standards are

> Standard One  *The information literate person recognises the need for information and determines the nature and extent of the information needed*
>
> Standard Two  *The information literate person finds needed information effectively and efficiently*
>
> Standard Three  *The information literate person critically evaluates information and the information seeking process*
>
> Standard Four  *The information literate person manages information collected or generated*
>
> Standard Five  *The information literate person applies prior and new information to construct new concepts or create new understandings*
>
> Standard Six  *The information literate person uses information with understanding and acknowledges cultural, ethical, economic, legal, and social issues surrounding the use of information*

- the April 2003 establishment of the Australian and New Zealand Institute for Information Literacy (ANZIIL).[18]  This institute, also initiated and sponsored by the University of South Australia, aims to support organisations, institutions and individuals in the promotion of information literacy and embedding it within the total educational process.  It will identify, facilitate, foster and support best practice in information literacy through
  - professional development
  - promotion, marketing and advocacy
  - research

- research funded by several university libraries to develop a methodology for self assessment by students of their information literacy.  A pilot study in two disciplines, Law and Education, was completed in 2003, and an administration manual published in December 2003.  It enables institutions

> to monitor the implementation across programs of teaching and learning strategies aimed at improving information literacy outcomes.[19]

## Who owns information literacy?

Information literacy is an issue for librarians but it is *not* a library issue.  It needs to be owned all educators. However, turning information literacy and learning how to learn into 21st century substance will, it seems, continue to require leadership by librarians. The leadership will *not* usually come from academic teachers, who may have difficulty in grasping the issue,

see it as a threat to their autonomy, or may be reluctant to move beyond the comfort zone of content exposition and commentary. Nor may it come from university teaching and learning development centres, as it is but one—albeit arguably the most fundamental—issue among those they need to promote in changing approaches to teaching and learning. Nor will it come from professional associations, such as in medicine and law, which may have a pecuniary interest in constraining the information literacy of potential clients of their professions. Nor, typically, will that leadership come from the multinational corporate sector, politicians, bureaucrats and governments. All of those may have more to lose than gain from truly information literate citizens able to, what the American Library Association describes as, 'spot and expose chicanery, disinformation and lies'. Witness the constraints on Freedom of Information legislation and access, company information, consumer information, journalists, librarians, books and the internet in many countries.

There are three reasons why information literacy needs to be owned by the whole university community. The first is because information literacy is about learning how to learn in the information intensive 21st century. The second is the lifelong learning agenda. The third is the rapid obsolescence of content in professional first degree programs, making knowledge of how to learn, and how to find, evaluate and apply new information that more important for professionals and their professions. Much of the content in such degrees has a use by date of less than ten years. They focus on answers which continually change, rather than on questions which rarely change.

### Developing the academic teacher/academic librarian partnership

Just how librarians should best partner with their teaching colleagues, and just how they should contribute to the disaggregation of their teaching, is debatable. For example, in a June 2002 article in *Australian academic and research libraries*,[20] Lupton argued that successful information literacy development requires a shift in librarian self image, and that libraries need to work in tandem with teachers to embed information literacy into course content and view the work of students to assess whether information literacy goals are being reached. The article asserted that teacher librarians in schools have no sense of boundaries of responsibility, so why should not academic librarians?

A response to these assertions was provided in the March 2003 issue of the same journal by Asher. In an article entitled *Separate but equal: librarians, academics, and information literacy* he argued that

> What a librarian can't do, at least not as well as the academic who spent a decade of focused reading and study in graduate school and wrote a book length dissertation on an arcane element of his subject discipline, is teach students to extract information from resources, theorise, or locate meaning. Teaching students to analyse data, evaluate ideas, and develop a philosophical understanding framed within a subject discipline are elements of information literacy that lie outside the expertise of most librarians. Universities hire academics to do that. The librarian can change a life for the better every day by opening a door for a student to a new piece of knowledge. The academic can help the student interpret it. Both of these jobs are important. Both professions teach. But they work best separately. Erasing the boundaries that keep them separate weakens their strengths. [21]

Doskatsch covers these partnership issues very well in 'Perceptions and perplexities of the faculty-librarian partnership: an Australian perspective'.[22] She also highlights the importance of academic librarians understanding the language of pedagogy and engaging with curriculum issues.

That debate aside, academic libraries and their professional staff are, of their own initiative or by expectation of their institutions, already contributing at various levels to pedagogical

approaches and outcomes focused on students and learning outcomes.  There would be few academic librarians who could not identify academic teachers in their universities who have been very receptive to engaging with them as partners in learning and information literacy development.

There are certainly indicators that, using the 'handle' of information literacy and by promoting their online connectivity and resources and the capacities of their professional staff, Australian university libraries are helping their universities and teaching and learning development centres to open the window of educational change.  Some disaggregation of teaching is already underway.  Disaggregated roles, such as assessing learning resources for quality, overlap with what librarians do now, and the subject expertise of the academic teacher is being married with the librarian's navigation and sense making of the information universe.

**Information commons or learning commons?**

However, a self limiting educational role is still to be seen in the way space planning for academic libraries has been approached in the 1990s and in particular the development of information commons in them.  In his November 2003 report for the US Council on Library and Information Resources, *Libraries designed for learning*,[23]  Scott Bennett cogently argues that a different vision is needed if libraries are to also achieve their potential as physical spaces for teaching and learning, and that
- library design should not be dominated by information resources and their delivery, but should 'incorporate a deeper understanding of the independent, active learning behaviour of students and the teaching strategies of faculty meant to support those behaviours'.
- the greatest challenge in designing a learning commons is ensuring that it is 'owned' by learners, rather than by librarians or teachers
- to better understand the potential for the library as education space, planning partnerships that are shaped around substantive questions of teaching and learning should be created with faculty and students
- the core activity of a learning commons should be the collaborative learning by which students turn information into knowledge, *not* the manifestation and mastery of information

**Developing the librarian/librarian partnership**

Librarians need to partner with teachers in developing information literate students and in helping those academic teachers grapple with the increasing information complexities of their own disciplines.

They also need to engage more with general and specialist educational associations, conferences and publications.  Like all professionals, librarians tend to focus within their own professional silo, and talk to the converted.  Yet of all the professions in an information intensive society, librarianship has the most to offer every other profession.  It should be the empowering partner of all of them.

Librarians should not, however, neglect partnerships within their own profession.  Although there are noteworthy exceptions in the UK, US, Canada, Australia, New Zealand, South Africa and Scandinavia where university libraries are proactive participants in local networks of primary school, secondary school, community college and public libraries, few university libraries or librarians directly engage with, or reach out to, other parts of the profession.  When they do, the focus tends to be on information resource sharing and access, rather than on learning collaborations and strategies.

Yet one weak link in the chain of a nation's library infrastructure inevitably impacts on the others. This is a message which the library profession in Australia has still to communicate to the different jurisdictions which fund different types of libraries. Academic libraries may find that first year undergraduate students are completely information illiterate but rarely probe whether this is because secondary schools do not employ enough qualified teacher librarians, do not provide access to electronic databases, and do not embed information literacy development into the curriculum. Even more rarely would they see it as their role to raise this with the appropriate authorities, although the reality is that no one else in a university will do so. However, what access students in primary and secondary schools have to teacher librarians, well resourced school and public libraries and curricula which develops their information literacy, will inevitably impact on the work of academic teachers, academic librarians and students themselves.

There is thus a need for all types of librarians to make greater connection with each other beyond the traditional resource sharing, with their mutual interest in developing information enabled people as the key connector. The process needs to commence in primary schools. Universities and their libraries cannot achieve their full potential in isolation from the other formal sectors of education. Nor can they do so in isolation from the informal educational sectors such as public libraries, of which typically 35 per cent of users are students enrolled in educational institutions.

**Vision and assertion**

The Australian and New Zealand academic library experience—and frustrations—as educational change agent and in promoting information literacy, is not unique. It is shared by academic libraries in other countries.

That experience begs a number of questions. These include
- how well is student metacognition, surface and deep learning theory understood by academic teachers and academic librarians
- is it possible to have meaningful pedagogical change without a very strong focus on the information context of the 21st century in which current and future generations will develop?
- in an electronic context, who owns the curriculum?[24]
- can, and do libraries already, help transform teaching and learning through the information resources they acquire and promote?
- are libraries throwing fulltext information at students and overwhelming them?
- is academic library space planning still dominated by a concern for information resources, their storage and their delivery?
- what roles should librarians plan for in a disaggregated approach to teaching?
- what educational backgrounds and personal qualities do they need, to be effective in contributing to that disaggregation?
- how well are library and information studies schools developing their graduates to be educators?
- how can academic librarians become more adept at inviting themselves to the curricular, pedagogical and policy table if they are not invited?

No response is offered in this paper to those questions, other than to the last.

Thomas Hesburg the president of the US Notre Dame University once observed that

> The very essence of leadership is that you have to have a vision. It's got to be a vision you articulate profoundly on every occasion. You can't blow an uncertain trumpet.

Librarians do have a vision, and it is the reason they chose to become members of one of the most international and dynamic professions in the world. It is of a better and more just world through the information enabling of all people. The questions which remain are whether they articulate that vision, and how certainly they blow their trumpet. The answer to both questions is, not well enough. They do need to become more assertive about their educational partnership responsibilities, rather than continue to propose, or accept, themselves as educational support or service professionals focused only on information identification, acquisition, organisation, management, sharing, access and skills development, critical though that role is.

Such assertion is not an easy thing to do, because the questions it raises are threatening of almost everyone in the higher education enterprise. Yet, as Harrison and Owen emphasise

> …they *must* be asked because the quality of higher education will not be improved without such questioning. Effective teamwork has never been a characteristic of much of the educational enterprise, but it needs to become an essential model within which the librarian will have a unique and valued contribution to make, and be able to debate and question curricular, pedagogical and assessment practices in their universities.[25]

**The winds of educational change—how do they blow?**

Illich and Freire concluded that

> Education is not neutral. Its purpose can be either to domesticate or to liberate. Education domesticates where knowledge is given to or deposited into learners where the relationship between educators and learner is that of subject to object.

Progressive universities have recognised that their teaching, and learning outcomes should be liberating, not domesticating. This is implicit in their attempts to develop and integrate graduate attributes into their program approvals, curricula, pedagogies and assessment. However, if they are honest, they will concede that much of what they still do domesticates, and does not liberate. An interesting exercise would, in fact, be for universities to map their programs and learning outcomes, and determine on what side of the liberating/domesticating fence they fall. Librarians should leave no doubt on which side of that educational fence they are.

Institutional education, like society, is in turmoil because of economic and social forces, both heavily influenced by technology. Line has observed that 'libraries are invariably, and centrally, caught up in the turmoil',[26] and Iannuzzi emphasizes that

> Academic libraries must continue to redefine their role within the teaching and research missions of their universities. Just as institutions are held accountable for students' success after they leave campus, *we may also be held accountable for sending students into careers who are unprepared to function effectively in the complex information environment.* We must constantly evaluate our teaching functions and assess student learning outcomes. If not, others will most certainly hold us accountable.[27]

It would be an exaggeration to assert that the winds of educational change are blowing strongly and consistently in higher education, but they are at least wafting through those universities which recognise the need to reengineer their teaching and learning frameworks. This wafting wind is pushing ajar a window of opportunity for their libraries to contribute to that liberating educational change, and to learning and lifelong outcomes appropriate to the new century.

It is important that they do so, because of the many global challenges none is more critical than growing the community of the informed and questioning as rapidly as possible.

Whether those challenges are democratic, economic, geopolitical, environmental, health or sustainability, what they have in common is that their solution can only be advanced by people who are literate, information literate, can ask informed questions and who are prepared to do so—people who, to quote a recent Australian writer on the issue of misinformation

> Read more widely, see more clearly, think more clearly. Challenge authorities on every occasion. More importantly challenge themselves.[28]

This, surely, is the essence of the challenge for all of us—teachers, administrators, and librarians—as educators in the 21st century.

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