Changing the paradigm: libraries, education and networking

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Dr Alan Bundy
University Librarian
University of South Australia
alan.bundy@unisa.edu.au
www.library.unisa.edu.au

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Abstract In progressive universities the next 25 years will see graduate qualities, massification, technology, flexible delivery and new disciplines drive pedagogical change. The lecture transmission of rapidly outdated content will continue to give way to a focus on the qualities required by students for employability and lifelong learning. Heavier and more diverse workloads on university teachers will encourage the disaggregation of their teaching. Academic librarians should contribute proactively to that disaggregation and, as a key accountability, to the development of information literate students. This will require them to translate their success in local, national and international networking and partnerships to the broader educational arena.

The most enduring and flexible learning institution is the library, organised for well over two millennia—predating the first universities by well over one millennium—to provide self-paced and self-selected transmission of knowledge. Axiomatically, therefore, libraries and librarians should be proactive participants in the evolution of the 21st century educational paradigm.

Dr Samuel Johnson, the 18th century English lexicographer and savant, would have had no argument with that assertion. It was he who observed that

Lectures were once 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 content through lectures, or variations on them.

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. The reality is that students with weak skills need more individual attention and more opportunity for interaction, particularly at the beginning of the term. At the same time, students with strong skills—those who would benefit from having more opportunity to explore the
material fully or who could accelerate—are locked into a fixed time frame for completing
the course. The large, impersonal lecture format simply cannot accommodate the broad
range of differences among students.¹

Nonetheless Dr Johnson might be reassured that among the challenges recognised by
progressive universities is change management of the pedagogical paradigm to meet
individual, national and global needs in the 21st century knowledge economy.

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.²

Those challenges 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’.³

Indeed, 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.⁴

The lesson from secondary education

There has been a discernible, if very uneven, pedagogical shift in developed countries to a
student centred resource based learning philosophy and practice at all levels of formal
education. In secondary education the improved learning and information literacy outcomes
from partnership between teacher librarians and classroom teachers are becoming evident.

Teachers in information age schools, compared to what have been referred to as ‘smokestack’
schools, are moving from imparting meaning to enabling students to make meaning. This is
requiring a shift in
- methodology from teacher centred to student centred
- resource based teaching to resource based learning
- assessment from solely product, to include process

The Colorado studies⁵ showed ten years ago, and since, that investing in skilled library staff, a
state-of-the-art library, and collaboration between teachers and teacher librarians, improves
secondary student learning outcomes significantly. Where secondary education has set the
partnership and information literacy lead some universities are following in a context where,
as Line has asserted

- 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 needs⁶
The disaggregation of teaching

The University of South Australia—one of Australia’s newest and pedagogically progressive universities—has been reflecting on those issues in developing its teaching and learning framework for 2010. That reflection is within a culture where an orientation to the needs of the student as consumer predominates but where there is also recognition that in education the consumer is not always right. As Edmund Burke declared to the electors of Bristol in the UK in 1774 ‘Your representative owes you, not his industry only, but his judgment: and he betrays, instead of serving you, if he sacrifices it to your opinion.’

The University’s teaching and learning framework discussion paper notes that

University education has been traditionally based on a transmission model of teaching in which authority and responsibility for content largely rested with an academic staff member, whose function it was to communicate what was important to students and then assess their mastery of relevant knowledge, skills and understandings. This model is predicated on knowledge and power relationships, both of which have been challenged by learning theories and technological developments and eschewed by the University in its articulation of the future learning environment…

That framework analyses the changing role of its teachers, observing that

As well as working collaboratively with other educational institutions and providers it is clear that changes in the ways that teaching and learning take place through information and communications technologies mean changes in role for academics. Mass higher education has meant that governments are looking at changes to funding models with a view to containing costs and bringing efficiencies and this can be expected in the area of delivery and teaching models. Funding changes to the research area question the traditional coupling of teaching with research within the role of academics and changes to the funding arrangements for teaching are foreshadowed…the disaggregation of teaching into curriculum decisions, materials and delivery design, student learning services and support, interaction with students, marking assignments, and quality assurance of both courses and the teaching and learning process opens the area to a range of roles that were formerly within the role of the academic staff member.

The University of South Australia is thus grappling with a fundamental pedagogical issue faced by many universities. With strong support from its University Library it has, since 1995, led Australia in identifying seven graduate qualities within its quality assurance and improvement process. These are, that a graduate of the University

1. Operates effectively with and upon a body of knowledge of sufficient depth to begin professional practice
2. Is prepared for lifelong learning in pursuit of personal development and excellence in professional practice
3. Is an effective problem solver, capable of applying logical, critical and creative thinking to a range of problems
4. Can work both autonomously and collaboratively as a professional
5. Is committed to ethical action and social responsibility as a professional and a citizen
6. Communicates effectively in professional practice and as a member of the community
7. Demonstrates an international perspective as a professional and as a citizen

The University Library’s main direct contribution to the achievement of those qualities has been its leadership, institutionally and nationally, in promoting the importance of developing information literate students through the curriculum and pedagogy. This issue is considered later.
That approach to specifying the enduring outcomes of a higher education was probably first conceived by Alverno College in the US. What is most significant about the University of South Australia’s approach is that only one of its graduate qualities is focused on knowledge content. That inclusion itself derives in part from the expectations of professional associations, associations which tend to be slow to accept educational change.

The characteristics of the modern university

In addition to the disaggregation of teaching, in Australia the following scenario is likely to characterise its public universities in the years ahead:

- they will be challenged to remain intellectually free places seeking truth, defending those who tell it, and promoting the free flow of information and ideas
- a continuing distinction between them and competency-based vocational education institutions
- they will be institutions of both research and teaching
- more massification
- they will be ‘clicks and mortar’ institutions accessible 24x7x365
- greater diversity of student background
- lack of connection of undergraduate students with their universities because of their need to work part time
- higher staff/student ratios in some disciplines
- fewer low enrolment courses
- relatively less government funding
- more internationalisation—Australia is now the third largest worldwide provider in terms of onshore and transnational (offshore) students
- more entry pathways
- more credit transfer
- more flexibility of enrolment, delivery and academic progress
- more technological opportunities to disaggregate teaching and learning
- continuing shifts in notions of curriculum ownership
- increased focus on graduate qualities
- more local, national and global partnerships

Those are all significant issues. One which particularly faces the University of South Australia is internationalisation and the cultural assumptions embedded in its graduate qualities. This is because of its rapid positioning as Australia’s—and one of the world’s—largest providers of transnational (offshore) education. The conundrum is well described in the following extract from its teaching and learning 2010 discussion paper.

In collaborating with partners and in providing transnational programs for students we seek both to acknowledge cultures in other countries and recognise their impact upon teaching and learning. To overlay this cultural acknowledgement upon programs and teaching and learning arrangements that reflect our own value positions is not an easy task especially where what is valued about teaching and learning are significantly at odds. For example, in some cultures being a teacher is to hold an acknowledged authoritative role and a transmission view of teaching and learning is valued, in others critical and independent learners are encouraged by a view of teaching that places more emphasis on facilitation and guidance.

The University Library is also engaged in this debate, in part from its experience over several years in sending its academic librarians to work with students in South East Asia. In 2002 it employed a researcher, Dr Carolyn McSwiney, to continue the exploration of the pedagogical,
information literacy and cultural issues involved in supporting international students. Dr McSwiney’s masters and doctoral research has been in internationalisation and libraries.\(^8\)

**The information literacy divide**

Because universities should be places where information and ideas flow freely and where truth is sought, disseminated and defended, there is a need to reevaluate the substance, durability and relevance of their educational outcomes in the age of information.

The issue for universities 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 graduate qualities movement.

Librarians are strongly committed to equity. Many consider that in an information intensive society 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. An iteration of this is to be found in the Australian Library and Information Association’s 2001 *Statement on information literacy for all Australians*, a statement which readily translates to a global context, and the message of which should be embedded in the mission, curricula and pedagogy of all universities.

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 Australian contribution to information literacy

Apart from the progressive but uneven infusion of information literacy into teaching and learning in secondary schools, and more recently its universities and community colleges, Australia has taken several other information literacy initiatives of note

- five national information literacy conferences
- the publication of Dr Christine Bruce’s award winning book *The Seven faces of information literacy*—a seminal text on information literacy
- the publication of *Information literacy around the world* edited by Candy and Bruce
- the development, as an initiative of the University of South Australia Library, of national information literacy standards, an improvement on the US standards of 2000. *Information literacy standards* is being used already in a wide range of Australian educational contexts, and has been translated into Spanish and Bahasa Indonesia. Its comprehensive introduction is particularly useful in establishing information technology ‘fluency’ as a subset of information literacy.

The standards are

1. The information literate person recognises the need for information and determines the nature and extent of the information needed
2. The information literate person accesses needed information effectively and efficiently
3. The information literate person evaluates information and its sources critically and incorporates selected information into their knowledge base and value system
4. The information literate person classifies, stores, manipulates and redrafts information collected or generated
5. The information literate person expands, reframes or creates new knowledge by integrating prior knowledge and new understandings individually or as a member of a group
6. The information literate person understands cultural, economic, legal, and social issues surrounding the use of information and accesses and uses information ethically, legally and respectfully
7. The information literate person recognizes that lifelong learning and participative citizenship requires information literacy

A second edition of the standards is in preparation and will be available by the end of 2003. That second edition will derive from a workshop of 60 participants held in Sydney in January 2003 to review the first edition. The workshop was opened by Dr Ralph Catts, a senior academic, who spoke about the importance of information literacy and the need to distinguish it from other generic attributes. He argued that a national standard or framework is essential to enhance the concept in higher education, to inform curriculum development, and to provide a basis for assessment and benchmarking.

- the April 2003 establishment of the Australian and New Zealand Institute for Information Literacy (ANZIIL). 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 and led by Dr Catts to develop a methodology for self-assessment by students of their information literacy. A pilot study in two disciplines, Law and Education, has been completed.

Another significant Australian university library development is a national student portal to greatly enhance access to information resources, and which will contribute to changing academic work. The Academic and Research Libraries Information Network (ARLIN) is a virtual research network that will provide unmediated, personalized and seamless access to the resources of libraries, commercial information providers, and to any internet resource selected by academics and librarians. Its innovative features include:

• use of portal software on a national basis
• authentication approach
• personalisation for individual researchers

The ownership of information literacy

Information literacy is an issue for librarians but it is not a library issue. It needs to be owned by the total educational community. However, turning the rhetoric about information literacy and learning how to learn into 21st century substance will continue to require library leadership. The leadership will not usually come from academic teachers, who may have difficulty in grasping the issue, perceive it as a threat to their autonomy, or may be reluctant to move beyond teacher-centred exposition of content. Nor may it come from university teaching and learning development centres, as it is only one—albeit arguably the single most important—issue among the many they need to promote in changing the curricular and pedagogical paradigm. 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 two fundamental reasons why information literacy needs to be owned by the total educational community. The first is lifelong learning. The second is the rapid obsolescence of much content in professional first degree programs, making knowledge of how to learn, and how to find, evaluate and apply new information that more important. The reality is that much of the content in such degrees has a use by date of ten years. They focus on answers which continually change, rather than on questions which rarely change.

The issues were reflected very well in a 1994 Australian government report Developing lifelong learners through undergraduate education. In its substantial section on libraries it noted:

A number of librarians from universities and other institutions made submissions to our study which provided an insight into the multifaceted role of libraries in higher education. We spoke with, and received submissions from, librarians who were involved with the courses selected for indepth profiling and, from the data collected, it was clear that librarians saw their role as undergoing major transformation as they themselves became agents of change within the university community….librarians are operating at the cutting edge of technological developments in identifying the need for, locating, accessing, evaluating and managing information.
In order for this vision to be realised, however, two important changes would be necessary. Firstly, academic staff would need to view their role differently, and to see themselves as facilitators of learning; and secondly, there would need to be enhanced collaboration between academic staff and librarians in the design and delivery of programs.

With respect to the first two issues, a number of librarians acknowledged that not all academic staff share their commitment. They often faced difficulties in working with academic staff who were committed to tried and tested didactic learning methods and who were not prepared to make the shift to resource based teaching in which students had responsibility for their own learning.

**Developing the partnership**

Just how librarians should best partner with their teaching colleagues, and just how they should contribute to the disaggregation of teaching, is contentious. For example, in a June 2002 article in *Australian academic and research libraries*, Lupton argued that successful information literacy development requires a dramatic shift in librarian self-image, and that they 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 riposte 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.

My University of South Australia colleague Irene Doskatsch has covered these partnership issues very well in a forthcoming journal article ‘Perceptions and perplexities of the faculty-librarian partnership: an Australian perspective’. In particular, she asks whether academic status for Australian librarians would cement the faculty librarian partnership. Whilst highlighting the importance of academic librarians understanding the language of pedagogy and engaging with curriculum issues, she concludes that

> …academic librarians want their contribution to education recognised but are not necessarily interested in academic status…Overall it appears that the benefits are few and the obligations are many.

Doskatsch also astutely observes that

> Yet another reason—a more realistic reason—is that most academic librarians are simply too preoccupied coping with constant change to reflect on professional self-understanding and self-definition. Academic status with its obligations and challenges is the last thing on their minds.

This debate aside, the reality is that academic libraries and their professional staff are, of their own initiative or by expectation of their institutions, contributing at various levels to
pedagogical approaches and outcomes focused on students and their capacity to learn for life. Academic teachers and their disciplines can be slow to change their educational mindset. Yet there would be few academic librarians who could not identify disciplines, and individuals, in their universities which 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.

As a 2002 Australian federal government review of higher education discussion paper *Striving for quality: teaching, learning and scholarship* states

> Higher education institutions should produce graduates with skills, knowledge and learning outcomes that promote individual development and that the nation requires for continued economic, social and cultural development. The new century is generating a need for ‘emerging’ skills and knowledge that have not been previously a focus of higher education. These include initiative and enterprise skills; information literacy and management skills; the capacity for lifelong learning; the ability to be adaptable and ‘learn to learn’ in jobs and roles yet to be envisaged; and skills to work effectively in multidisciplinary contexts.

**Increasing student-teaching staff ratios: a driver of change**

A key dilemma in countries committed to widening access to higher education is how to create a system of mass participation which also is of high quality and diversity. The massification of higher education worldwide will likely increase student-teaching staff ratios, which in turn will likely accelerate different approaches to teaching and learning, and the disaggregation of teaching. Seven years ago the average student-teacher ratio in Australian universities was 16.2. In 2001 it was 19.9. Now it is as high as 25 in some universities, more than in many Australian secondary schools. It may continue to rise. This will mandate a different pedagogical construct if the aims of a 21st century higher education are to be achieved. If this does not occur we may see a reversion to educationally narrowing packaged approaches to education, increased electronic and other plagiarism, and assessment exclusively by examination. This risk is accentuated by the growth of proprietary course management and learning packages, and by commercialisation, prescriptive pedagogy, assessment and evaluation.

Constraints on university funding and workload issues may drive pedagogical change more effectively than any appeal to teaching staff to reconsider their discourse. The next 20 years in universities should, arguably, see more teachers employed but also relatively more professional staff to partner them, particularly librarians. This would require—it does already—a recalculation of teaching load, away from the crude student-teacher staff ratio to a more sophisticated approach inclusive of all who contribute to effective teaching and learning outcomes.

**Broadening networking**

Libraries and librarians are very effective networkers, at the local, national and international levels. IATUL is an example of that international networking and within Turkey there are excellent examples such as OBES as a collective document delivery service and ANKOS as
an electronic products licencing consortium. That sense of the common good through cooperation is a rare primary strength and value of librarianship which is not publicised well enough beyond the profession, although the Australian Library and Information Association’s March 2002 *Core values statement*, and especially its seventh value about partnerships, provides a starting point.

The preface to that statement asserts that

A thriving culture, economy and democracy requires the free flow of information and ideas. Fundamental to that free flow of information and ideas are Australia’s library and information services. They are a legacy to each generation, conveying the knowledge of the past and the promise of the future. Library and information services professionals therefore commit themselves to the following core values of their profession.

Those values are

1. **Promotion of the free flow of information and ideas through open access to recorded knowledge, information, and creative works**
   We assert that this access across time and across cultures is fundamental to a thriving culture, economy and democracy.

2. **Connection of people to ideas**
   We guide, inform and educate the seeker in defining and refining the search, and foster intellectual freedom and all forms of communication.

3. **Commitment to literacy, information literacy and learning**
   We enable independent and formal lifelong learning by providing resources and expertise to meet the needs of learners, and of the human spirit.

4. **Respect for the diversity and individuality of all people**
   We accept each request without bias and in confidence, and strive to meet it with all our resources and expertise.

5. **Preservation of the human record**
   We seek to preserve the cultural memory, knowledge and evolved wisdom of humankind, to explain the past, illuminate the present and inform the future.

6. **Excellence in professional service to our communities**
   We strive for integrity, competence, personal growth, and service to our profession and to our communities.

7. **Partnerships to advance these values**
   We advocate cooperation between all library and information services, and with related agencies, for the private and public good.

**Connections**

When we talk about partnerships, the remit is very broad. Clearly librarians need to partner with teachers in developing information literate students and in helping those 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. Yet of all the professions, librarianship has the most to offer every other profession. Librarianship should be the empowering partner of all professions in the age of information and knowledge.
Librarians also need, however, to not neglect the strengthening of partnerships within their own profession. Apart from regarding secondary schools as a source of recruitment, universities tend not to have strong curricular and pedagogical connection with them. Similarly, 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, high school, community college and public libraries, few university libraries or librarians directly engage with, or reach out to, other parts of the profession.

Yet one weak link in the chain of a nation’s library infrastructure inevitably impacts on the others, a message which the library profession has been generally unsuccessful in communicating to the different jurisdictions which fund different types of libraries. Academic libraries may find that undergraduate students have a poor level of information literacy but rarely ask whether this is because schools do not employ qualified teacher librarians or provide access to electronic databases. Even more rarely would they see it as their role to raise this with the appropriate authorities, yet what access students in primary and secondary schools have to teacher librarians and well resourced school and public libraries will inevitably impact on the work of university teachers and librarians.

There is 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 literate and information enabled young people as the key connector. 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.

Some issues

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

That experience begs a number of questions. These include

- 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?
- are university libraries support agencies in the educational process, or partners in it?
- how proactive should they be in supporting educational change?
- in an electronic context, who owns the curriculum?19
- can, and do libraries already, transform teaching and learning through the information resources they acquire and promote?
- are libraries throwing fulltext information at students and overwhelming them?
- what roles should librarians plan for in a disaggregated approach to teaching?
- how well are library and information studies schools preparing their graduates for an educative role?
- what educational backgrounds and personal qualities do they need to be effective in contributing to that disaggregation?
- how can national and institutional policy makers be encouraged to include librarians in addressing educational, information policy, economic and social issues?
- how can librarians become more adept at inviting themselves to the curricular, pedagogical and policy table if they are not invited?
- should international agencies such as UNESCO, the OECD and IATUL have an information literacy position and commitment when information literacy, coupled with
information access, is a prerequisite for economic, cultural, and democratic progress in all countries?

No response is offered in this paper to those questions other than to the questions of how libraries can become more adept at inviting themselves to the curricular, pedagogical and policy table if they are not invited, and whether they are just educational support agencies.

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—that of a better world through the information enabling of its young people and all citizens. The question which remains is whether they articulate that vision well enough, and how certainly they blow their trumpet. They do need to become more assertive about their educational partnership responsibilities, rather than continue to propose themselves as educational support agencies with a self-limiting role focused just on information identification, acquisition, organisation, management and access, critical though that role is.

Conclusion

Education and society are effectively being re-engineered and are in turmoil because of economic and social forces, both heavily influenced by technology. As a consequence many universities have become

…a particular kind of public corporation, autonomous but accountable, state funded yet fee charging, open to all yet selective, enjoying special privileges but expected to fulfill a range of functions for the public good.20

Line observes ‘Libraries are inevitably, and centrally, caught up in the turmoil.’21 However, as Patricia Iannuzzi emphasises

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. 22

The re-engineering of the teaching and learning framework is underway or in prospect in progressive universities worldwide. This provides a window of opportunity for their libraries to demonstrate their existing and potential contribution to educational change, and to educational and lifelong outcomes appropriate to the age of information. The early 21st century is no time for faint heartedness in higher education. It is just as surely no time for faint heartedness by academic librarians in pushing open their window of opportunity—and demonstrating that they are willing to be held to account for their contribution to the information enabling of the world’s citizens and its future leaders.
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