Embedding Information Literacy into the Curriculum: A Case Study of Existing Practice and Future Possibilities at a Hong Kong University

Carmel McNaught
Centre for Learning Enhancement and Research, The Chinese University of Hong Kong
E-mail: carmel.mcnaught@cuhk.edu.hk

Colin Storey and Shirley Leung
University Library, The Chinese University of Hong Kong
E-mail: {storey, shirleyleung}@cuhk.edu.hk

Abstract

This paper begins by examining the changing nature of university curricula in the 21st century. An increasing focus on graduate capabilities in university curriculum design has foregrounded the importance of information literacy. Thus, university librarians have an increasing role in embedding information literacy into university programmes and courses. The extent of the concept of information literacy is discussed. The paper explores the model of information literacy support developed at The Chinese University of Hong Kong. The model has two main aspects: 1) working with faculties through a system of faculty liaison librarians; and 2) a well established student induction and support system. The paper concludes with a discussion of current challenges.

University Curricula in the 21st Century

There is almost a mantra these days about the increasing rate of change in all institutions. What is remaining the same? What is changing? Higher education rests on the premise that student learning can be facilitated by operating in a planned environment. If we don’t believe that we should return to the days of unstructured discovery learning that many of us tried in the 60s and 70s (either as learners or teachers) and found very unsatisfying. Basically, not only does the curriculum need to be planned, but also the nature of the total student experience over, usually, a period of years needs to be considered if curriculum alignment (Biggs, 1999) is to occur and result in demonstrable benefits for students. What about the ‘online’ or ‘e’ aspect? The key thing here is not to think of online learning as being totally different to learning which occurs in traditional face-to-face education. The learning process is not different (after all, students are still people with the same neural pathways), but several other things have changed dramatically.

Firstly, the global partnerships in higher education mean that various perspectives on knowledge coming from a range of cultures need to be negotiated. Also, there is an increasing diversity in the students who enter post-secondary education. This diversity covers academic motivation and orientation, linguistic and cultural background, prior educational experiences, learning styles and approaches to
learning. These students interact with teachers who have diverse approaches to and beliefs about teaching and learning. Fourthly, there is increasing diversity in the learning contexts students enroll in; these might be workplace learning, studio-centred learning, programmes with intensive block teaching (often across national borders), cross-sectoral programmes or tailored industry-related programmes. Finally, the technology itself means that there is an increasing range of tools and strategies for us to use in designing programmes and courses. All this diversity is summarised in Figure 1.

Here at The Chinese University of Hong Kong (CUHK) this diversity is clearly understood and integral to planning. CUHK’s vision is stated as “To be acknowledged locally, nationally and internationally as a first-class research university whose bilingual and bicultural dimensions of student education, scholarly output and contribution to the community consistently meet standards of excellence”. This combination of the maintenance of Chinese cultural values together with an active outreach to the world is an intriguing challenge.

Figure 1 Globalisation increases diversity in higher education (after McNaught, 2003)

What is Involved in Designing University Programmes for the 21st Century?

A general description of ‘educational design’ might be ‘a planned process of making curriculum decisions about how best to support student learning in some defined area’. It is worthwhile spending a little time looking at the meaning of learning. Learning is a complex process. How do students learn the important ideas they need to know? Do they assimilate information which they then reproduce? This might be possible for certain facts, but even then, if the facts are all unrelated, it is hard to remember them. Learning is much easier if connections can be made between ideas and facts. How can these connections be made? Is it by rules, as in a system of information processing, much like the way a computer can be programmed? This might be possible for learning fixed processes which are always the same, for example, a laboratory procedure such as setting up an electrical circuit from a diagram, or routine clinical procedures such as taking a patient’s blood pressure. But sets of rules are not enough when learners need to solve a problem they have not seen before, or when they want to design something quite new (a bridge, a poem, or a plan for doing new research). Something else is needed then. In these cases, learning appears to be a complex process where knowledge is constructed from a variety of sources. What students learn depends on what they already know, how they engage with new ideas, and the processes of discussion and interaction with those they talk to about these ideas.

Another way to look at the complexity of learning is to examine the diversity of beliefs about what constitutes learning. In the literature, one contrast to emerge with some consistency is between academic teachers who think of learning as reproducing knowledge (and of teaching as organising and presenting the knowledge to be reproduced), and others who think of learning as a process in which understanding is constructed by the student with the assistance of the teacher (e.g. Trigwell, Prosser & Taylor, 1994). This is
often called the instructivist/constructivist paradigmatic divide. Roblyer and Edwards’ (2000) approach of looking at the relevant emphases of ‘directed instruction’ and ‘constructivism’ is perhaps more helpful. They do not adopt an either/or approach but instead discuss the relative emphases of design aspects in each paradigm. A constructivist approach involves a focus on learning through posing problems, exploring possible answers, and developing products and presentations, in contrast to a focus on transmitting hierarchically constructed content and skills. This then implies that the constructivist approach emphasizes pursuing global goals that specify general abilities such as problem solving and research skills; anchoring learning tasks in meaningful, authentic situations; group work rather than individualized work; and alternative learning and open-ended assessment methods.

The paradigms that people adopt for the design and development of educational environments reflect their prior knowledge and experience, the manner in which they were taught, and implicit (or explicit) models of teaching and learning they have experienced in their own educational undertakings. The adage that ‘people teach as they were taught’ may be extended to ‘people design educational environments based upon their experiences (and perceptions) of teaching and learning’. ‘Directed instruction’ may well be useful in many specific situations, but our ultimate goals in education are ‘constructivist’. The outcomes of education, especially if we take a lifelong view of learning, are more likely to be described by broad capabilities, such as the list of clusters of abilities noted by Nightingale, Te Wiata, Toohey, Ryan, Hughes and Magin (1996):

- thinking critically and making judgments;
- solving problems and developing plans;
- performing procedures and demonstrating techniques;
- managing and developing oneself;
- accessing and managing information;
- demonstrating knowledge and understanding;
- designing, creating, performing; and
- communicating.

In a globally connected world where challenges are inter-disciplinary, these capabilities become more essential. Information literacy is integral to the development of many of these capabilities.

So, designing appropriate university programmes involves working out how the ultimate broad educational goals we have can best be met by specific choices of activities and assessment within individual small modules, units or courses. There needs to be alignment between stated learning outcomes, student activities and assessment. This needs to occur across various levels of skill and understanding. There are implications for the level of achievement in that these need to be specified clearly; for example, it may be that full mastery is expected for some foundational aspects of the discipline but that variation in the attainment of graduate capabilities is expected (and that is certainly what occurs!). The art of educational design lies on being able to work across both programmes and courses, and being able to map student learning across an entire degree or diploma programme.

### Exploring the Meaning of Information Literacy

If we combine several of the capabilities above, we come up with something close to a useful working definition of information literacy:

*Information literacy involves accessing, evaluating, managing and communicating information.*

The difference between information and knowledge is often not clearly defined, and indeed there often a strong overlap in normal conversation. The analogy of the difference between the bricks and mortar, and the house can be useful. Information is the bricks, and learning skills and processes constitute the mortar. Combining ‘bricks’ of information together using appropriate strategies (mortar) can result in a new house of knowledge. Knowledge is constructed from information. Thus, an information literate person is someone who can find and select the right information for any given task.
With this basic definition in mind, let us take a more detailed look at information literacy standards and skills. The American Library Association and Association for Educational Communications and Technology (ALA & AECT, 1998) produced a list of nine information literacy standards. By standards is meant goals or benchmarks. There are three areas with three standards in each area. The three areas are information literacy, independent learning, and social responsibility. The fact that information literacy itself is a subset of the information literacy areas is an illustration of the challenges that occur when one tries to define the boundaries of information literacy. What is helpful about this framework is the sense of moving from a more neutral skills orientation to a value-laden position of social connectedness. There is a synergy here with the concept of a globalised curriculum shown in Figure 1. The nine standards are shown in Figure 2 with the centrality of the information literacy area highlighted.

One other useful term is ‘critical literacy’. This essentially encapsulates all nine of the standards described above. Van Duzer and Florez (1999) describe critical literacy as encompassing “a range of critical and analytical attitudes and skills used in the process of understanding and interpreting texts, both spoken and written”. The term is often used with adult language learners but its applicability is much wider. It is useful to be reminded that aural (and oral) skills are also needed in developing high levels of information literacy. In our multilingual societies this reminder is especially important.

Before looking at how The Chinese University of Hong Kong Library supports information literacy, it is useful to go back again to look at learning. Just what does a learner need to do in order to carry out a successful information search? What skills does s/he need? Eisenberg’s Big6 Skills are a useful set. They indicate clearly the complexity of information searching but also highlight that information searching is best approached in a methodical and meticulous manner. A lot more than random Google searches is involved! The Big6 Skills are in Table 1.

![Diagram](image_url)

**Figure 2 Nine information literacy standards** (after ALA & AECT, 1998, pp. 8-9)
Table 1  Big6 Skills (Eisenberg, online)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Details of the process</th>
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<tbody>
<tr>
<td>Task definition</td>
<td>• Define the information problem.</td>
</tr>
<tr>
<td></td>
<td>• Identify information needed in order to complete the task (to solve the information problem).</td>
</tr>
<tr>
<td>Information seeking strategies</td>
<td>• Determine the range of possible sources (brainstorm).</td>
</tr>
<tr>
<td></td>
<td>• Evaluate the different possible sources to determine priorities (select the best sources)</td>
</tr>
<tr>
<td>Location and access</td>
<td>• Locate sources (intellectually and physically).</td>
</tr>
<tr>
<td></td>
<td>• Find information within sources.</td>
</tr>
<tr>
<td>Use of information</td>
<td>• Engage (e.g. read, hear, view, touch) the information in a source.</td>
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<tr>
<td></td>
<td>• Extract relevant information from a source.</td>
</tr>
<tr>
<td>Synthesis</td>
<td>• Organize information from multiple sources.</td>
</tr>
<tr>
<td></td>
<td>• Present the information.</td>
</tr>
<tr>
<td>Evaluation</td>
<td>• Judge the product (effectiveness).</td>
</tr>
<tr>
<td></td>
<td>• Judge the information problem-solving process (efficiency).</td>
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</table>

The University Library System at the Chinese University of Hong Kong

Our University Library has a key role in assisting the embedding of information literacy into the curriculum. As far as the University Library System (ULS) of The Chinese University of Hong Kong (CUHK) is concerned, efforts have been made since its foundation in the 1960s to fulfill this role. In the last five years, these efforts have been intensified owing to the rapid and burgeoning availability of a huge variety of electronic resources. In many cases these e-resources have very few things in common with each other in terms of standardization of storage, metadata and display, search keys, copyright restrictions and so on. Thus, as the diversity of resources increases, so too do the challenges for the Library staff.

The ULS at CUHK consists of six libraries in all, with a stock of 1.8 million items. It serves a registered readership of 16,700 students, 2,700 faculty members, 3,200 non-teaching staff, 6,000 alumni, and 5,400 external users, in all a total population of 34,000. The mission of the University Library is similar to any academic library in the world, and includes:

- providing learning resources and services to support all disciplines of the University’s academic programmes, in study and teaching, and in research and development; and
- supporting and stimulating intellectual growth and academic development within the institution and beyond.

The ULS aspires to become a recognized leader in academic libraries in Greater China and in the Asia Pacific Region with sufficient resources to build a digital-print hybrid library and ample opportunities for developing the talents of its users. It is forward-looking, proactive, and quality-focused, with expertise in delivering library services that need to be diversified, innovative, timely and flexible.

Based upon best professional practice, the ULS offers a responsive student support service. The ULS librarians try to foster a learning environment which allows for multiple and diverse user requirements; they do this by having a physical and virtual campus, and a community hub which combines the traditional and the modern. This vision is based upon an assumption that more will be continuously expected and required of the Library service, but with increasingly modest resources. For example, one of the major challenges for the ULS is pressure for physical and virtual access to and usage of Library collections by a range of different clientele. The ULS user community is rising in numbers because of new varieties and patterns in undergraduate and post-graduate curricula, especially with planning for the introduction of the four-year undergraduate degree and associate degree programmes. In addition, there are...
increasing demands for wider and deeper access from ‘non-traditional’ university library users such as self-funded course students, and lifelong and distance learners. Non-traditional library users are a common and welcome aspect of the Hong Kong educational scene, and evidence of Hong Kong’s rich intellectual life.

Deeper collaboration with the other seven tertiary institution libraries in Hong Kong is a crucial requirement in meeting this challenge, with increasing collaborative exploitation of the print and e-resources of all libraries by a common user base.

In terms of developments in information technology, modes of scholarly communication, and student teaching and learning, almost nothing is certain. Billings (2003) calls the punctuations intruding upon a library’s natural development ‘wild cards’. Notwithstanding this, the ULS’s basic functions within the University have always been the same. The traditions of stewardship and service are continuing, but with an added emphasis on the Library as a community centre. This significant step might well be one of our Library’s competitive responses to other available services which may be perceived as better alternatives to actually seeking the advice of a librarian, for example, Google. The ULS strives to provide relevant and personal services that support and anticipate the teaching and research needs of library users. Much more emphasis is now being placed upon developing campus-wide user outreach, alert services, a virtual reference service, desk-top delivery and education programmes. Monitoring and analysis of usage of Library services is undertaken so that resources can be allocated strategically and rigorous standards can be sustained.

Two typical initiatives are used here to highlight how these service goals are being met by CUHK librarians in terms of the ongoing enterprise of embedding information literacy into the university curriculum: first, faculty liaison work with academic colleagues; and, second, instruction and induction courses targeted at specific interest groups.

**Faculty Liaison Work**

A Faculty Liaison Programme was introduced in the ULS in 2002 after a year of careful planning. This is not a new concept. Academic library websites all over the world describe liaison initiatives which now have proven track-records; these models (see two examples of US & UK universities in URL references 1 & 2) have been useful here. The ULS was able to exploit and build upon current practice and move quickly forward to implementation. In brief, the Faculty Liaison Programme is designed to help librarians and teaching departments work together so that faculty members may fully appreciate existing services, understand available and new resources, and assist in the Library’s strategic development to parallel advances in the curriculum. This programme links a representative faculty member from each department (usually, the departmental library committee chairperson) with a librarian assigned as the liaison librarian to that department. The faculty members and liaison librarians meet formally or informally as often as they need.

The goals of the programme are to:

- enhance formal and informal communication and collaboration between faculty and librarians, thereby strengthening partnerships with faculty to make the Library an essential component in teaching and learning;
- increase librarians’ awareness of faculty needs and curriculum development; and
- improve and focus library services and collections (URL reference 3).

Prior to setting up the programme, a number of briefing sessions were held for the newly assigned liaison librarians. An intranet was established for providing liaison information including Frequently Asked Questions for all liaison librarians. After three years of growth in their activities, liaison librarians now supply monthly new addition lists and annual departmental journal subscription lists to the teaching departments. They make recommendations for the take-up of subscriptions to new databases and electronic journals, and assist faculty members in ordering
and securing price information for journals, audio-visual materials, and electronic resources. They review and expand departmental approval plan profiles for automatic book delivery from worldwide suppliers, and have persuaded more teaching departments to join such approval plans by, for example, successfully promoting the use of the GobiAlert service, a web-based book selection tool, rather than having to wade through piles of the traditional book publishers’ information paper slips.

The challenges inherent in setting up this programme were largely anticipated. There are 29 professional librarians in the ULS with first degrees in 20 different subjects, but they serve 60 teaching departments. Librarians inevitably have to look after more than one department, and, in doing so, are required to build up and prove an expertise in a given department’s scholarly literature and specific information needs. To address this problem, the librarians are organized into seven teams, one for each faculty, so that they are not totally alone in liaising with any given department. In addition, librarians are in many cases being asked to create a personal relationship with senior professors from scratch. Faculty liaison work can be particularly complex in the allocation and acquisition of appropriate print and e-resources to support teaching, learning and research. Liaison librarians advise departments on how best to apportion scarce financial resources so that they may achieve the best information coverage. The response of faculty members can be very mixed, ranging from those who warmly welcome assistance which has never been offered or sought after before, to a minority who feel that the liaison librarian can be of little help to them. There is no doubt that Faculty Liaison Teams are thus on the front line in developments to integrate the ULS more fully into the University’s active learning styles and models (Brophy, 2002).

**Instruction and Induction Courses**

As part of their work, liaison librarians are requested or offer to conduct subject specialised library instruction courses. Liaison librarians therefore need to work cooperatively with their own reference colleagues since the Reference Department is charged with operating student instructional programmes. This leads to the second and final example of literacy embedding: instruction and induction courses targeted at specific interest groups.

Every year, teaching departments ask reference librarians to conduct Library instruction courses for students on specific subjects such as business, education, social work, journalism & communication, Chinese language and literature, Japanese studies, pharmacy, and Chinese medicine. Usually these courses are duly scheduled to match the teaching timetables and are sometimes given in the departmental classrooms as well. Recently, Reference staff conducted a Library instruction session on ‘evidence-based nursing’ for the faculty members of the Nethersole School of Nursing. The seminar was requested by the School and was held in their departmental classroom. Since a large number of such courses are requested by faculties and are held outside the Library, the total numbers of participants are not usually recorded.

Librarians are involved in the Improving Postgraduate Learning programme coordinated by the University’s Graduate School and the Centre for Learning Enhancement And Research (CLEAR). Courses and workshops include: first, a three-hour long subject-specific programme, Locating Information@Library for postgraduates new to the University; second, an Internet and Research workshop; and, third, a mandatory course for every postgraduate student, Observing Intellectual Property and Copyright Law during Research. As requested by CLEAR, orientation sessions are always conducted for new teaching staff in early September of every year.

Reference librarians conducted 104 instruction sessions and 48 library tours in 2003. For the past few years, 40 Library orientation sessions for new undergraduate students have been scheduled at the beginning of each academic year. To promote information literacy, Information Literacy Certificate Courses were introduced. After attending five lessons on information literacy skills, participants are granted a certificate by the
Library. Again in 2003, 55 students attended five consecutive lessons of the course and were granted a certificate from the Library.

In these, as in all courses mounted by ULS librarians, feedback forms are used so that students’ views can be incorporated into future course development. If the timetable of a given scheduled class does not fit the users’ requirements, groups of users may also request specific instruction sessions to fit their schedules.

Besides face-to-face contact courses held in classrooms, online web-based instruction plays a vital part in enhancing the information literacy of users. A general Web-based ULS Information Literacy Tutorial has been set up with web pages on the following topics:

- Common misconceptions about information searching;
- Types of information sources;
- Timeliness of information sources;
- Formats of information sources;
- When to use different categories of information sources;
- How to locate various information sources;
- How to evaluate information sources;
- Citation styles; and
- Check your skills. (URL in reference list)

In addition, Online Path-finders on specific subjects have been updated and continuously mounted. Topics include search engines, patents, Hong Kong statistics, job hunting and more than fifteen research disciplines.

Besides the above programmes offered by Reference staff, other professional librarians of ULS also play a role in information literacy. In September 2003, the University Librarian conducted a library workshop for a credit course in General Education jointly offered by the four University Colleges. At the beginning of the academic year, Branch Librarians of College Libraries provide orientation sessions to new students as part of the College General Education programmes. The two medical librarians teach multiple sessions related to every stage of the medical curriculum.

### New Challenges on the Horizon

Formal and informal reflection is part of the Library’s efforts at continuous improvement and enhancement of its services. In reviewing the information literacy initiatives so far, the ULS librarians have identified several challenges.

Most of the Library’s programmes are not credit-bearing, nor even certificated. This means that participants’ attendance is not mandatory. Further, if and when people do attend, their attention span may be strictly limited because the extrinsic rewards are low. Thus, when contact is made, it is crucial that librarians acquire lively teaching skills.

As far as faculty members are concerned, how can librarians reach sometimes quite senior individuals whose information literacy skills, and particularly online searching capabilities, are a great deal less extensive than they think, or are willing to admit? Reaching out to such people can only be done with tact, and with assurance and proof that librarians can offer tangible and profitable assistance.

How much of what the librarians are doing is actually paying dividends? Do the participants learn from these many and diverse programmes? Because of the sheer number of specific requirements, the courses offered cannot possibly be tailored to the various literacy skill levels of 34,000 individuals, even though efforts are made to link content to a single student’s broad area of study. Librarians are not traditionally trained in student assessment for credit-bearing courses, and until they are, their work cannot be fully embedded in the curriculum.

This leads to a final challenge. How heavily does the University want its librarians involved in credit-bearing teaching? Will there be resources to support the continued diversification of the librarians’ roles and work? The answers rather depend upon the librarians’ sometimes slow, but sure success rate in proving the worth of their liaison work and the courses and workshops they offer.
References


Library URLs:

