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Promoting literacy in a digital age: approaches to training for information literacy

David Bawden and Lyn Robinson
Department of Information Science, City University London

ABSTRACT: Information literacy, and other similar 'literacies', such as digital literacy, mediacy, and informacy, are concepts relating to knowledge, skills, and attitudes, at various levels, in dealing with information in varied formats and diverse situations. The breadth of scope of these concepts implies that training must be equally broad, varied, and context-sensitive.This is exemplified by two case studies of information and digital literacy training. The first is a training programme in information literacy for the scientific staff of a multinational pharmaceutical research organization. The second is a summer school dealing with digital literacy, primarily for information professionals from countries of Central and Eastern Europe, and the former Soviet Union.

The meaning and scope of information literacy

The term 'information literacy' has been widely, and sometimes confusingly, used in the literature. A number of other related terms have also been used for the same, or similar, concepts: these include:

- computer literacy (or IT literacy, information technology literacy, electronic literacy or electronic information literacy);
- library literacy;
- media literacy (or 'mediacy');
- network literacy (or Internet literacy or hyper-literacy);
- digital literacy (digital information literacy);
- informacy.

Bawden[1] gives an analysis and comparison of these concepts (see also Behrens[2] for an earlier critical review). It is helpful to distinguish between 'skills-based literacies', such as computer or library literacy, which essentially indicate a competence in handling information in a particular setting or context or format, and more general capabilities.

These wider conceptions of information literacy, for which the term 'informacy' has sometime been used, stress capabilities beyond a simple competence in retrieving or communicating information. As Kulthau[3] puts it: 'What does it mean to be literate in an information society? Information literacy is closely tied to functional literacy. It involves the ability to read and use information essential for everyday life.' While characteristics and capabilities may be defined for this broader context, they are likely to be much less specific than for competence-based literacies.

For example, Bruce[4] gives seven 'key characteristics' of an information-literate person, one who:

- engages in independent, self-directed learning;
- uses information processes;
- uses a variety of information technologies and systems;
- has internalized values that promote information use;
- has a sound knowledge of the world of information;
- approaches information critically;
- has a personal information style that facilitates his or her interaction with the world of information.

understanding, meaning, and context must be central

Similarly, Rader[5,6] argues that the information-literate citizen will be characterized by an ability to acquire and use information appropriate for any situation, within or beyond a library, both locally and globally, so that information-literate people will be able to:

- survive and be successful in an information/technology environment;
- lead productive, healthy, and satisfying lives in a democratic society;
- deal effectively with rapidly changing environments;
- ensure a better future for the next generation;
- find appropriate information for personal and professional problem solving;
- have writing and computer proficiencies.

Other terms that have been used to describe these broad capabilities include 'digital literacy',[7] which emphasizes the use of digital information, but also the enduring value of print, and 'mediacy'[8–10] which emphasizes an ability to deal with information in different media, according to individual traits and learning styles.

Overall, it is best to understand information literacy as something much broader than an enhanced form of computer skills, or of bibliographic instruction. To deal with the complexities of the current information environment, in particular the new forms of information products generated in the move to a largely digital information space, a complex and broad form of literacy is required. It must subsume all the skill-based literacies, but it cannot be restricted to them. Nor can it be restricted to any particular technology or set of technologies, and understanding, meaning, and context must be central to it.[1]

This implies that training for information literacy must be correspondingly broad, and must take different forms according to its context. We now illustrate this point with two case studies.

Case study 1

This example involves the planning, implementation, and evaluation of a training programme in information literacy for research workers in a multinational pharmaceutical company. This area is well-known as particularly 'information intensive', with an unusual variety and sophistication of information needs, sources, and systems.[11] In this particular situation, the sheer variety of systems and sources available was posing problems for effective use, particularly as familiar printed journals and reference sources were supplemented and replaced by digital equivalents.

The programme was designed for both UK and US sites of the organization. It was intended that, ultimately, all research workers would undergo this training, which would be a certificated competence.

Since computer literacy is already a required competence within this organization, with its own well-developed training programmes, this background could be assumed. The training programme was based around a working definition of information literacy, appropriate to the scientific research environment, as being the ability to:

- articulate information requirements;
- identify the best resources to meet them;
- develop effective search and navigation strategies;
- evaluate, manipulate and use resulting information.

The programme then covered the whole of a 'knowledge spiral':

- recognition of a need for information;
- choice of appropriate sources;
- information retrieval;
- evaluation of retrieved information;
- organization of information;

- manipulation and processing of information;
- communication and storage of information;
- effective use of information.

(It is a spiral in that the use of information generally leads back to a need for more information, thus 'closing the circle'. Since knowledge has increased, however, the participant is at a 'higher' level; hence a spiral rather than a circle.)

The programme comprises eight short 'modules', each covering on the aspects noted above. The materials developed for these may be delivered in a conventional training format, in a half-day or full-day course, or may be made available for self-learning on the organization's intranet. Both types of training were provided, and both had their own advantages. They were supported by a variety of aids, including subject-based guides to resources and searching, and matrix of information sources and appropriate uses, and intranet-based guides to key sources and information processes.

A detailed evaluation of the initial version of this training programme was carried out with three groups within the organization, leading to modifications and improvements to the material and delivery methods. These evaluations included a variety of tools, from interviews with participants and their managers, and participants' self-assessment of their capabilities, to analysis of use of information systems pre- and post-training. Over 90% of participants were positive about the programme.

One of the issues with this programme was that, while general principles might be constant, the specifics of types of information needed, relevant sources and systems, nature of processing involved, criteria for evaluation, etc., are very different. This meant that the each module had to be constructed as a 'skeleton' of general principles and good practice, which were then illustrated and exemplified with appropriate material for each discipline and area being considered. This is an illustration of the general (unsolved) question: to what extent is information literacy a topic in its own right, and to what extent must it be embedded in the knowledge of a particular subject, or the specifics of a particular kind of problem? It is interesting to note that this problem emerges within what might be thought of a very tightly focused information environment – a single organization, with a variety of scientific disciplines relating to drug discovery and development.

It is also worth noting that training on 'traditional' and specific library/information issues – such as choice of resources and effective search strategies – was considerably easier to provide, and to assess and evaluate, than broader aspects, such as effective use of information and identification of information need.

Case study 2

This example relates to a summer school training course in information literacy for information professionals, largely from Central and Eastern Europe, and the former Soviet Union, but also from countries such as Haiti, South Africa and Pakistan. Part of the Summer University of the Central European University, Budapest,[12] the course attracts a variety of information professionals from across the region, including librarians, archivists, IT managers, resource managers, journalists, and teachers.

Digital literacy, by and for library/information professionals, is also supported through a network of training centres throughout the region served by the summer school, as part of the information activities of the Open Society Institute, supported by the philanthropist George Soros.[13,14] With a primary remit for professional development of library/information workers, these centres are now helping the promotion of information literacy for the development of civil society.[15] Information provision in this region is going through a period of transition, with the problems in supply of traditional resources, due to economic and structural factors, being to some extent offset by provision of networked information and electronic resources – an example being the EiFL Direct electronic journal and database initiative.[16]

The summer school was first held in 1997 as a course strongly centred on the use of

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the Internet, and particularly effective retrieval of information, and evaluation of information. Over time, its scope expanded. Initially, the publication and communication of information by electronic means were included. Latterly, the course has covered more general topics of digital literacy in open societies, with a particular emphasis on critical thinking, on the importance of metadata, and on the information professional as a promoter of information literacy, and of the role of libraries in this context. The principal topics included in the 2001 course give an indication of its scope:

- Nature of digital literacy
- Information and communication technologies
- The library in society
- Information resources
- Digital information in libraries
- Finding and accessing information
- Evaluating and organizing information
- Training the trainer
- Libraries in the digital age
- Digital literacy in open societies

Between 1997 and 2000, the summer school used 'conventional' teaching and learning methods – lectures, seminars, practical classes, student presentations, etc. – over a two-week period.[17] In 2001, it was adapted to a largely e-learning mode, via the Internet.[18] Students used a Web-based learning environment (webCT) for access to material, with communication by email, discussion lists, etc. A one-week 'face-to-face' period was used largely for discussion sessions, professional visits, and similar activities. In this way, ideas of digital literacy were illustrated in practice and by example, as well as by didactic teaching.

A central theme for this course has been 'critical thinking'

A central theme for this course has been 'critical thinking', sometimes taken as a central aspect of information literacy. This term has been used with diverse meanings: see, for example, Arp's discussion of the matter.[19] A useful summary is that of Gibson and Meade,[20] who suggest that it is 'a disciplined process of:

- asking informed questions
- posing problems in various ways before attempting to solve them
- examining assumptions
- solving ill-structured, messy, 'real-world' problems
- evaluating sources of information
- assessing the quality of one's own thinking and problem-solving'

plus, crucially, the ability to create mental frameworks to give context to the mass of information which may be available on the subject at hand.

As with case study 1, it was easier to provide training on aspects such as use of search engines and Web page design than on societal and individual issues. These have been largely dealt with by discussion, example, and the participants' own reflection.

Conclusions

These two case studies illustrate the diversity of approaches which must be considered for effective training in information literacies. One is based in a tightly focused research environment, and deals with complex systems for handling scientific information. The other is based in a much more open environment, taking participants from widely differing backgrounds, and dealing with 'softer' issues of critical thinking, and the role of information within society.

The case studies show how some general principles of information literacy can be identified, and used in training. They also show how these must be contextualized, illustrated with very different examples, and presented in a very different way, to meet the needs of different groups of learners. In this way, they reflect the breadth and scope of the information literacy concept, and the challenge for trainers and facilitators in this subject.

Note

An earlier version of this paper was presented at IOLIM 2001: D. Bawden and L. Robinson, Training for information literacy: diverse approaches, in *Proceedings of Online Information* 2001, Oxford: Learned Information, pp. 87–90 (paper presented 5 Dec. 2001).

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David Bawden
Senior Lecturer, Department of Information Science
City University, Northampton Square
London EC1V 0HB, UK
Email: db@soi.city.ac.uk