

## ***Information literacy and learning on-line***

### ***Overview of Dorothy Williams' presentation***

#### **Profile**

Professor Dorothy Williams is Reader in the School of Information and Media at Robert Gordon University. Her research and writings over several years have addressed key issues of ICT literacy, development and support needs for students and for teachers in the primary and tertiary sectors.

#### **Background**

This was a presentation for discussion rather than a formal paper, providing some current definitions and models, exploring relationships between information literacy and learning, arguing for clarity and closer integration with the learning process, and setting some questions to be addressed by new research. This paper therefore threads several 'non-linear' strands of information rather than presenting a case.

#### **Initial question**

Framing the presentation, the broad question was raised as to whether 'on-line' or 'networked' learning, construed as ICT + information content, presented an opportunity or a challenge to the learner.

There are assumptions that such learning environments provide solutions for future formal and informal learning needs, provide for and even encourage learner flexibility and autonomy, and support 'effective learning'. With these go expectations that the learner will access a wide range of learning resources through the internet.

Information provision at such a level, however, is a moving feast involving uncertainty or risk-taking for many learners.

This situation is not restricted to distance or work-based learning groups. Traditional learners, also, are expected to use an increasing range of opportunities to engage with wider resources. Libraries stock less print-based journal and other resources than they did, replacing these with electronic access subscriptions. It is expected that students will also use these at a distance, a case of 'dis-intermediation' where the learner engages directly with the learning resources without the direct intervention of a lecturer, teacher or librarian – knowing when to ask for help.

#### **Definitions and concept development**

Definitions of information literacy, drawn from many perspectives, seem to situate themselves *outside the actual learning process*.

Information literate people are those who have learned how to learn. They know how to learn because they know how information is organised, how to

find information, and how to use information in such a way that others can learn from them.

*American Library Association 1989*

This (rather circular) definition concerns itself with the information processing, rather than the learning, role.

Other interpretations over the years, although careful to distinguish ‘information literacy’ from (merely) ‘ICT skills’ similarly take little account of the experience of learners engaging in the learning process itself. Definitions tend toward information processing skills and competencies, rather than information *literacy*. The implication is that there is a neatly defined skills set that the learner can be helped to engage with. The emphasis is on processing of information handling, rather than the experience of a learner trying to engage with potential resources for learning within a subject discipline. This associates with a separation of ‘information skills’ classes from the rest of the learning environment.

- What do I need to do? (*formulation and analysis of need*)
- Where could I go? (*identification and appraisal of likely resources*)
- How do I get the information? (*tracing and locating individual resources*)
- Which resources shall I use? (*examining, selecting and rejecting individual resources*)
- How shall I use the resources? (*interrogating resources*)
- What should I make a record of? (*recording and storing information*)
- Have I got the information I need? (*interpretation, analysis, synthesis, evaluation*)
- How should I present it? (*presentation, communication, shape*)
- What have I achieved? (*evaluation*)

*Marland, 1981*

Later development extended to include ‘critical thinking and problem solving’ in what were still broadly ‘information processing’ definitions of information literacy:

*An information literate person;*

- recognises the need for information
- recognises that accurate and complete information is the basis for intelligent decision making
- identifies potential sources of information
- develops successful search strategies
- accesses sources of information, electronic and otherwise
- evaluates information
- organises information for practical application
- integrates new information into an existing body of knowledge, and uses information in critical thinking and problem solving

*Doyle 1994*

More recent definitions and models seek to align information literacy with learning, critical thinking and social responsibility and begin to make sense in relation to networked *learning* environments. Information Literacy Competency Standards for

Higher Education set five standards and twenty-two performance indicators, stating that:

Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning. An information literate individual is able to:

- determine the extent of information needed
  - access the needed information effectively and efficiently
  - evaluate information and its sources critically
  - incorporate selected information into one's knowledge base
  - use information effectively to accomplish a specific purpose
  - understand the economic, legal and social issues surrounding the use of information, and access and use information ethically and legally
- (ACRL 2000)*

An attempt to achieve an integration of information literacy and learning, and extend that to social responsibility is more explicit in the definition set given below:

*Information literacy*

The student who is information literate

- 1: accesses information efficiently and effectively
- 2: evaluates information critically and competently
- 3: uses information accurately and creatively

*Independent learning*

The student who is an independent learner

- 4: is information literate and pursues information related to personal interests
- 5: is information literate and appreciates literature and other creative expressions of information
- 6: is information literate and strives for excellence in information seeking and knowledge generation

*Social responsibility*

The student who contributes positively to the learning community and to society

- 7: is information literate and recognises the importance of information to a democratic society
- 8: is information literate and practices ethical behaviour in regard to information and information technology
- 9: is information literate and participates effectively in groups to pursue and generate information

This seems to retain much of the circularity of the first examples provided above. Integration, in the sense of *defining* information literacy in the service of learning and, indeed, in the service of social responsibility, is not really addressed.

## **Information literacy in its own right?**

What sort of "information literacy" - an often-used but dangerously ambiguous concept - should we be promoting, and what should it accomplish? Is it merely something that will reduce the number of technology support calls that we have to deal with? Something that will grease the wheels of the information highway? Something that, as defined by representatives of the library community, enables people to be "effective information consumers"? Or is it, should it be, something broader, something that enables individuals not only to use information and information technology effectively and adapt to their constant changes but also to think critically about the entire information enterprise and information society? Something more akin to a "liberal art" - knowledge that is part of what it means to be a free person in the present historical context of the dawn of the information age? In *Information Literacy as a New Liberal Art* Shapiro and Hughes (1996) argue the case for information literacy to be conceived more broadly, as "a new liberal art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure, and its social, cultural and even philosophical context and impact - as essential to the mental framework of the educated information-age citizen as the trivium of basic liberal arts (grammar, logic and rhetoric) was to the educated person in medieval society."

Their model for an information literacy curriculum for higher education, covering seven dimensions of literacy, is summarised here:

**Tool literacy**, or the ability to understand and use the practical and conceptual tools of current information technology, including software, hardware and multimedia, that are relevant to education and the areas of work and professional life that the individual expects to inhabit. This can be taken to include the basics of computer and network applications as well as fundamental concepts of algorithms, data structures, and network topologies and protocols.

**Resource literacy**, or the ability to understand the form, format, location and access methods of information resources, especially daily expanding networked information resources. This is practically identical with librarians' conceptions of information literacy, and includes concepts of the classification and organization of such resources.

**Social-structural literacy**, or knowing that and how information is socially situated and produced. This means knowing about how information fits into the life of groups; about the institutions and social networks - such as the universities, libraries, researcher communities, corporations, government agencies, community groups - that create and organize information and knowledge; and the social processes through which it is generated - such as the trajectory of publication of scholarly articles (peer review, etc.), the relationship between a Listserv and a shared interest group, or the audience served by a specialized library or Web site.

**Research literacy**, or the ability to understand and use the IT-based tools relevant to the work of today's researcher and scholar. For those in graduate education, this would include discipline-related computer software for quantitative analysis, qualitative analysis and simulation, as well as an understanding of the conceptual and analytical limitations of such software.

**Publishing literacy**, or the ability to format and publish research and ideas electronically, in textual and multimedia forms (including via World Wide Web, electronic mail and distribution lists, and CD-ROMs), to introduce them into the electronic public realm and the electronic community of scholars. Writing is always shaped by its tools and its audience. Computer tools and network audiences represent genuine changes in writing itself.

**Emerging technology literacy**, or the ability to continually adapt to, understand, evaluate and make use of the continually emerging innovations in information technology so as not to be a prisoner of prior tools and resources, and to make intelligent decisions about the adoption of new ones.

**Critical literacy**, or the ability to evaluate critically the intellectual, human and social strengths and weaknesses, potentials and limits, benefits and costs of information technologies.

Whilst this does give a useful framework for thinking about information literacy *per se* and the rationale for comfort, familiarity and fluency as learning goals for its various aspects, does it not still divorce information literacy from the learning process itself?

### **Developing information literacy through understanding and supporting the learning experience...**

Our issue here, for this symposium, is on *preparing learners for learning online*.

Perhaps two strands of recent research can be summarised, which uncover certain basic issues. Firstly, a lack of clarity in curriculum technology suggested by Christine Bruce's (1997) work at Queensland University of Technology. This looked at views of information literacy and information handling in higher education, which clustered under seven categories:

- the information technology conception
- the information sources conception
- the information process conception
- the information control conception
- the knowledge construction conception
- the knowledge extension conception
- the wisdom conception

A study carried out within a school resource centre, monitoring how students handled information in the context of real curriculum tasks, identified the following as limitations on learning:

- computer access problems
- tensions within a group
- time constraints
- lack of understanding of information processes
- lack of focus, need to reinforce aims and skills – especially after a break
- lack of understanding of subject/theory
- lack of reference to instructions and checklists by pupils
- lack of confidence to seek help, or unawareness of need for help

- size and organisation of the resource centre
- lack of planning by teacher/librarian
- lack of common language between teacher and librarian

There is a tension between what is understood by ‘information literacy’ – however defined – and where (when and how?) that understanding is related to how our students go about their ‘learning business’. Further research, at quite a basic (though not simple!) level is needed and the following questions are just thrown up here as possible markers:

*What kind of ‘model’ of information literacy is ‘right’ for online learning environments?*

*Do we want a ‘tick box’ approach to developing skills or is there another way?*

*What kind of ‘information literacies’ do online learners develop?*

*What can we learn from teachers’ own experience as information users?*

*What IS the relationship between classroom and library – virtual or otherwise?*

(References will be included shortly)