Information Literacy for the Humanities Researcher: A Syllabus Based on Information Habits Research

by John W. East

This paper reviews the existing literature on the information behavior of researchers in the humanities, in order to develop a set of learning objectives which can be used in the planning of information literacy training programs for this group of library users.

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INTRODUCTION

A recent British study of researchers' use of libraries and other information sources found that 22% of arts and humanities respondents believed that they needed "a lot more training" in the use of electronic information sources. By contrast, only 6% of researchers in the physical sciences and engineering, and 8% of researchers in the medical and biological sciences, made the same response. Only 14% of arts and humanities researchers considered that they needed no more training, compared with 40% of respondents in the physical sciences and engineering and 24% in the medical and biological sciences.[1] It would seem that academic libraries need to develop more effective information literacy programs for researchers in the arts and humanities.

If our efforts in this area have not been as successful as they might have been, perhaps this is partly because we tend to plan our training programs on the assumption that we, the librarians, are the best judges of what the trainees need to know. The new postgraduate student, however, will be much more interested to find out how senior colleagues find and use information than to learn what librarians think about this process. If the advice given by a librarian is to be taken seriously, it must tally with the observed behavior of successful researchers. Fortunately there is a substantial body of literature on the information behavior of researchers in the humanities, demonstrating the practices of established and successful researchers. The aim of this paper is to suggest ways in which our existing knowledge of user behavior in the humanities can be applied to the development of an information literacy course for humanists. Although such a course will inevitably focus on the use of electronic information resources, it cannot afford to neglect the continuing importance of printed information resources in the humanities.

As Stieg pointed out in her study of the information needs of historians, the two main approaches that have been used to analyze the information habits of researchers are the citation study (in which the works cited in a body of the literature are used to draw conclusions about the information habits of researchers) and the user study (in which a sample of researchers is surveyed to elicit information about research practices).[2] Stieg rightly warns that both methods have drawbacks. Shaw and Davis have noted that "sometimes studies of one subject area are reported as representative of the humanities as a whole ... an approach which risks generalizing beyond the

group observed."[3] A further problem is that the sample populations surveyed are often very small: a major recent study by Brockman and others surveyed only 33 scholars across a range of humanities disciplines.[4] Interesting as the results of that study are, they do not give us any definite information about research practices in any specific humanistic discipline.

The survey population may also be unrepresentative in other respects. Some studies have only surveyed established research-ers. These subjects will normally be older, with a good knowledge of the literature of their discipline and well-established contacts to other researchers in their field. There is reason to suspect that younger researchers, such as new postgraduate students, will have to use somewhat different methods to acquire information. There is also the question as to whether younger researchers make more use (and more effective use) of emerging technologies. A recent survey of academic researchers across all disciplines in the United Kingdom found that postgraduate students had noticeably more positive attitudes than established academics to finding, accessing and using electronic information.[5]

An Information Literacy Syllabus for the Humanities Researcher

If we accept the proposition that a study of the literature on the information habits of humanists is a prerequisite for the planning of an information literacy course for the humanities researcher, the next step is to survey the literature and try to organize what it tells us into a series of professional compe-tencies which the humanities researcher needs to acquire. There are many different ways in which one could organize these learning objectives. The remainder of this paper sets out one possible scheme, referring to the published studies which underpin it.

Of those published studies, there are three recent works which are particularly significant:

- The *RSLG Study* was commissioned by the Research Support Libraries Group and is based on a postal question-naire distributed in early 2002.[6] The respondents included 250 researchers in the arts and humanities from universities throughout the United Kingdom. When reference is made to this study, the data will refer to the responses of the arts and humanities researchers only, unless otherwise stated.

- The *DLF Study* was funded by the Digital Library Federation and used interviews and case studies to examine the "information environment" of 33 humanities scholars from universities in Illinois.[7]

- The *DLF Data Set*, also funded by the Digital Library Federation, was assembled from interviews with faculty members, graduate students, and undergraduates from higher education institutions in the United States.[8] The sample included 239 researchers (faculty or graduate students) in the arts and humanities. When reference is made to this publication, the data will refer to the responses of the arts and humanities researchers only.

The disadvantage of relying upon published studies of information behavior is that the information environment is in a state of rapid change. These changes are surely affecting the information habits of researchers in ways not yet documented in the professional literature. For example, humanities researchers have only recently had access to large, full-text collections of digitized secondary journal literature. These collections can be searched by individual words or phrases. What impact will this have on research practices? Librarians must constantly monitor these developments to see how effective researchers (especially the "early adopters") are using such tools.

The proposed syllabus is divided into two parts:

1. General skills
2. Specific formats

Each part is further divided into a number of sections. At the end of each section the reader will find one or more learning objectives derived from the preceding discussion. For conven-ience, these learning objectives are gathered together in an appendix at the end of the paper.

GENERAL SKILLS

Understanding How Information is Disseminated in the Discipline

An obvious starting point for any research project is to think about how information is disseminated in the discipline, and where it is located. The RSLG Study found that "the Arts and Area Studies share with the Social Sciences a strong emphasis on the importance of physical access to libraries and collections, to browse and to take advantage of association and serendipity. Perceived barriers to accessing research collections in other locations, such as the time it takes to get there, the relative costliness of travel, and non-transparent access arrangements with other institutions, have no apparent impact on researchers' conviction that physical access to materials will remain essential."[9]

Learning Objectives

Researchers should establish how information is dissemi-nated in the discipline and should be able to identify the repositories (whether physical or virtual) which contain significant collections of relevant materials.

Identifying Appropriate Bibliographic Tools (Print and Electronic)

Most surveys show that, for humanists, the most valuable sources of references are the works cited in the books and journal articles that the researcher has already located.[10] This does not mean that scholars make no use of bibliographic tools. Wiberley and Jones found that "bibliography was most important for scholars when they were investigating unfamiliar primary sour-ces or secondary literature about subjects unfamiliar to them."[11]

> "Most surveys show that, for humanists, the most valuable sources of references are the works cited in the books and journals that the researcher has already located."

The literature on the information habits of humanists has traditionally stressed that scholars make only limited use of major abstracting and indexing journals. In her study of the information needs of historians, Stieg castigates their "unsys-

tematic approach" to information gathering.[12] She calls for "some fundamental changes in historians' attitudes" and for librarians to be more active in providing bibliographic instruction for historians.

It is questionable whether there is much point in expecting scholars to change their attitudes to information gathering. If scholars tend not to use major indexing and abstracting services, there is probably good reason for this. However, there are signs of change in this area. Massey Burzio found that humanists at Johns Hopkins University considered that electronic indexing had been a great boon and allowed them to find information more quickly.[13] Indexing and abstracting databases may be more attractive to the humanist than they were in their earlier printed incarnations. In her survey of historians at the State University of New York, Andersen found that in 1996 two-fifths of her sample were using abstracting/indexing databases on the library network at least monthly.[14] Similarly, the RSLG Study found that 56% of respondents considered bibliographic tools, indexing, and abstracting services to be essential for their research.[15] According to the DLF Data Set, 78.4% of researchers were using online abstracts and indexes for their research, and 69% were using print abstracts and indexes.[16]

When thinking about which databases to use, it is easy to overlook the local library catalogue. A survey of 4000 U.S. faculty members conducted by JSTOR in 2000 found that "for humanists, their home library catalog is the most important electronic resource to them by a large margin."[17] In the RSLG Study, 72% of respondents in the fields of area studies and language considered the use of other university libraries to be essential to their research,[18] so catalogues of other research libraries, when accessible via the Web, are another major resource for the humanities researcher, and large union catalogues may be more useful still.

It is a truism that research in the humanities is becoming more cross-disciplinary. When selecting databases to search, the researcher needs to bear in mind that useful material may well be located in databases that cater mainly for researchers in other disciplines in the humanities or social sciences. In the final report of the Getty End-User Online Searching Project in the Humanities, Bates tells us that "five scholars mentioned the value of online searching to explore inter-disciplinary topics or topics in neighboring disciplines...some of the best finds were materials found outside their own discipline."[19]

The DLF Study reported that "our data also verify what previous research has asserted about the age of scholarly resources: older materials continue to be used and valued by humanities scholars."[20] The importance of older materials has considerable significance for the selection of appropriate bibliographic tools. Databases that have extensive retrospective coverage will be of particular use to many researchers. Where no such databases exist, printed bibliographies and indexes are still essential tools for the researcher. Identifying suitable printed bibliographic tools can be a more difficult task than identifying suitable databases, as the number of printed bibliographic tools on the shelves of a large research library will be vastly greater than the number of electronic databases to which it subscribes.

Gould interviewed 103 U.S. researchers in a range of humanities disciplines and found that "almost unanimously, scholars expressed a preference for primary materials over secondary."[21] This is an important fact to bear in mind when identifying appropriate bibliographic tools. Many electronic databases index secondary materials only.

Learning Objectives

Researchers should be able to identify appropriate bibliographic resources, both print and electronic.

Researchers should be aware of the value of library catalogues as a bibliographic resource and be able to locate catalogues of other libraries via the Web.

Researchers should understand the factors which limit the usefulness of a bibliographic resource, such as chronological scope, types and language of resources indexed, currency, methods of indexing.

Searching Databases Effectively

As discussed at the beginning of this paper, there is awareness among many humanists that they need to learn more about how to use databases. The DLF Study identified a "disparity among the scholars in searching abilities. Some were quite conscious, or self-conscious, about what they perceived as a lack of searching skills." On the other hand, the authors also "observed the humanists using a variety of sophisticated searching techniques, such as applying the subject headings assigned to a catalog record to locate related works, limiting online searches to fields, or using Boolean combinations."[22]

> *"...there is awareness among many humanists that they need to learn more about how to use databases."*

Among the important issues here is the question of search terminology. Wiberley remarks that much of the terminology used in the humanities is "very imprecise: their definitions are often characterized by change over time or a wide range of meaning, and their referents frequently include a diversity of subjects or objects."[23] On the other hand, his survey of entry terms used in subject encyclopedias and dictionaries in the humanities revealed that about three-fifths of those terms are names of persons or single creative works. Researchers should understand the problems in choosing search terms and the desirability of using proper nouns as search terms where possible.

The choice of controlled vocabulary or natural language in the searching of databases is also important. Walker compared these two search methods in a range of humanities databases and found that controlled vocabulary searching produced more results.[24] However, her searches using natural language were limited to the title fields of the records in the databases, which probably invalidated her results, as researchers using natural language searching tend to search terms across all fields in the database records. Knapp and others conducted searches for humanities scholars on controlled vocabulary databases, using both controlled vocabulary and free-text terms, and they found that combining both approaches yielded more relevant items and higher recall than either method alone.[25]

Citation indexes (like the *Arts and Humanities Citation Index*) provide an alternative approach to identifying relevant references and one that is not dependent upon the use of subject terms. However, there seem to be mixed opinions among

scholars concerning the value of citation indexing in the humanities.

Boolean searching is an aspect of database use that should not be overlooked, even if some trainees might regard it as too basic a topic for a postgraduate information skills class. Bates comments on "the difficulty that many, though not all, people with a humanities background have in learning this skill."[26] Shaw found that some of the graduate students in language and literature whom she observed found Boolean operators "challenging."[27]

Shaw's study is also of interest for its finding that the researchers "generally retrieved and look[ed] through large retrieval sets" and "expected to wade through many citations to find the ones needed."[28] The imprecision of much humanistic vocabulary and the possibilities of serendipitous discovery probably encourage broader, less specific search strategies in the humanities.

Learning Objectives

Researchers should be able to search databases effectively, particularly with regard to choice of search terms, use of controlled vocabulary (where available), use of Boolean operators, and design of search strategy. .

Keeping Current

Received wisdom has it that, while scientists need to know of the latest research as soon as it is published, humanists are not so concerned about keeping up to date. Thompson conducted a citation analysis of books and journals in a branch of literary studies and found that only 41% of secondary materials cited were published in the preceding 10 years.[29] However, if recent publications are not as crucial to research in the humanities as they are in the sciences, this does not mean that humanists take little interest in the latest publications of their colleagues. The DLF study reported that the scholars whom they surveyed "value the current journal shelves and the title page services provided by the library."[30]

Jones and others reported that historians use a great deal of recently published material and use periodicals most extensively immediately after their publication.[31] This is confirmed by data from JSTOR, the electronic archive of academic journals, indicating that historians show more preference for recent journal articles than do mathematicians or economists.[32]

Brown conducted a survey of 188 North American music scholars and found that "the sources scholars find most important in their efforts to find out about new research are print-based (e.g., scanning new journals, scanning the new-books shelf or new-books list in the library, or scanning new bibliographies) or based on face-to-face contact with colleagues (e.g., going to conferences or talking with colleagues)."[33]

Learning Objectives

Researchers should be aware of the importance of keeping up to date with new publications and be able to develop strategies for achieving this.

Obtaining Material Not Available Locally

In her survey of historians at the State University of New York, Andersen found that in 1996 half of her sample were placing inter-library loan requests at least once a month.[34] The RSLG Study found that 49% of respondents considered inter-library loan services to be essential for their research.[35] The

history graduate students surveyed by Delgadillo and Lynch made heavy use of the library's Inter-Library Loan Department, although most of them complained of delays in obtaining material.[36]

No one library can provide the wide variety of material that many humanists require for their research. For this reason, inter-library loan services are essential to many researchers. To use such services effectively, researchers must be aware of their limitations (delays, costs, and the fact that some material is not available for loan) and plan their work around this.

Learning Objectives

Researchers should be aware of the importance and limitations of inter-library loan services.

Establishing a Network of Contacts

Stieg reported that historians "do not have a well-developed invisible college as do scientists, but depend primarily upon printed sources of information."[37] This statement seems to be contradicted by the fact that the respondents to her survey indicated that discussion or correspondence with acquaintances elsewhere was the fourth most important method of obtaining current information. In a survey of 108 humanists at the University of Utah, Broadbent found that 44% used "word of mouth" as a method of identifying wanted items.[38] The RSLG Study found that 67% of respondents considered networking with colleagues and attending conferences to be essential for their research[39] and the DLF Study reported that "the 'grapevine,' as one scholar termed it, is crucial for supplying references to recent books or articles that might not yet be indexed or cited."[40]

All of this evidence points to the fact that networking with other researchers is an important information-seeking technique for humanists. But how do humanists establish and foster their networks? The usefulness of attending conferences (for those who can afford it) has already been mentioned. What role is played by "virtual" conferences such as electronic discussion lists (listservs)?

In her survey of historians at the State University of New York, Andersen found that in 1996 about a fifth of her sample were using discipline-based listservs or electronic bulletin boards at least monthly. A further quarter of the sample were using them less frequently.[41] The RSLG Study found that 52% of respondents were making use of discussion lists.[42] Brockman and others found that the scholars in the DLF Study were using electronic discussion lists to identify other scholars working in the same field.[43] So there is evidence to suggest that discussion lists, if not a major information resource in the humanities, are certainly playing a role in developing networks and helping researchers to keep up to date.

Learning Objectives

Researchers should understand the value of informal contacts with other researchers as an information resource.

Researchers should be able to identify electronic discussion lists and forthcoming conferences, which are relevant to their area of research.

Consulting Library Staff

The literature makes it abundantly clear that researchers in the humanities do not see library staff as a major information resource. The graduate students in history who were surveyed

by Delgadillo and Lynch generally found that "the reference staff lacked the expertise needed for the level of their queries."[44] On the other hand, they found the staff in the Special Collections department and the library's subject bibliographers to be useful contacts.

> ## "The literature makes it abundantly clear that researchers in the humanities do not see library staff as a major information resource."

The RSLG Study found that only 28% of respondents considered that using enquiry and research assistance was essential for their research.[45] Yet the report of that survey remarks that "Researchers in Social Sciences, Area Studies and Languages and Arts and Humanities are significantly more likely to use research and enquiry services in their institutional libraries than their scientific colleagues. This clearly correlates with their relative reliance on physical access to collections and, in the case of the arts, humanities and area studies, with the diversity of physical research materials they require."[46]

Learning Objectives

Researchers should be aware of the value of specialist staff in libraries and other repositories as an information resource.

Organizing References Effectively

The DLF Study of 33 humanists reported that "at least two scholars employed a bibliographic program to manage citations."[47] The usage of such software among younger researchers is probably considerably higher. Programs such as Reference Manager, EndNote, and Procite, which were originally developed for use in the sciences, are now becoming more widely used in the humanities to enable the researcher to organize references and cite them in publications.

Learning Objectives

Researchers should be able to use personal bibliographic software to organize references.

SPECIFIC FORMATS

Books

It would be difficult to exaggerate the importance of books to humanities researchers. A survey of U.S. historians placed books as the most heavily used format.[48] A survey of scholarly publications in the field of American literature found that 64% of materials cited were books.[49] The RSLG Study found that 93% of respondents considered books as essential research tools.[50] Because of the importance of primary sources in many disciplines, there is considerable interest in older books. Heinzkill found that of the books cited in a sample of English literary journals, most were more than 10 years old.[51]

There are a number of techniques that researchers use for identifying the books that they require: following up references in known publications and searching bibliographic tools (especially library catalogues) have already been mentioned.

Browsing the library shelves is another much used approach to finding useful material. In a survey of humanists at the University of Utah, Broadbent found that 57% used browsing as a means of identifying wanted items.[52] The DLF Study

reported that "virtually all of the scholars reported browsing in the library to be of value to them in their work."[53]

There are frequent comments in the literature on the importance of the humanist's personal collection of books and journals as an information resource. For example, the RSLG Study found that 90% of respondents considered their own private collections to be essential for their research.[54] In her survey of historians at the State University of New York, Andersen found that in 1996 about four-fifths of her sample were purchasing books or journals at least once a month.[55] Development of a personal book collection is a technique that many researchers clearly consider useful. The development of huge "virtual bookstores" on the Web has made this process considerably easier. In the DLF Study, six respondents "cited Amazon.com as an important resource for developing basic bibliographies and for keeping up with new publications."[56]

Thompson conducted a citation analysis of books and journals in a branch of literary studies and found that, of secondary monographs published after 1964, 20 of the 316 publishers represented had published more than half of the 2230 works cited.[57] This illustrates the fact that, in some disciplines, a small group of publishers are responsible for the great majority of scholarly monographs published. Where this is the case, using alerting services (print or electronic) provided by such publishers can be a useful technique.

> ## "Electronic books still seem to be a little-used resource."

Electronic books still seem to be a little-used resource. According to the DLF Data Set, only 18.3% of researchers were using e-books for their research.[58] However, this is a rapidly developing area, and we might expect that future studies will find much higher levels of use of e-books.

Learning Objectives

Researchers should be aware of suitable bibliographic tools (including library catalogues) for identifying relevant books.

Researchers should understand the value of browsing library shelves to locate additional references.

Researchers should be aware of the value of an extensive personal collection of books and should identify sources from which to purchase new and second-hand material.

Researchers should be aware of major publishers in the discipline and be able to make use of alerting services which they offer.

Journal Articles

Heinzkill surveyed citations in 15 journals in the field of English literature and found that only 20% of those citations were to journal articles.[59] He also found that there was considerable emphasis on the more recent journal literature: about 40% of the journal articles cited had been published in the previous ten years.[60] Jones and others surveyed citations in journal articles on English history and found that historians make fewer references to monographs and more to serials than is customary in the humanities.[61] They also found that historians use periodicals most extensively immediately after their publication.[62]

Although the journal article is not as important an information resource in the humanities as it is in the sciences,

it is a major resource nonetheless. The RSLG Study found that 84% of respondents considered printed refereed journals as essential research tools.[63]

The DLF Study reported that "most scholars whom we interviewed cited several core journals that they read regularly; most maintain personal subscriptions to a limited number of journals."[64] The same survey reported that many respondents "browse through both bookshelves and periodical shelves to keep current or gain exposure to new ideas."[65] It is interesting to note that, as with books, personal collections and browsing the library shelves play a role in locating relevant journal articles.

Has the increasing availability of journals in electronic form affected the research habits of humanists? The DLF Study reported that "few scholars mentioned using. . .full-text resources, but those who did were extremely pleased with them."[66] The RSLG Study found that 24% of respondents considered electronic full-text services to be essential for their research, and 53% expect electronic full-text services to be used more in the future.[67]

Data from JSTOR, the electronic archive of academic journals, indicate that electronic access to journal articles increases their usage.[68] This is attributed to added convenience and searchability. If browsing new journal shelves in libraries is a technique which humanists use to keep up to date, we can assume that scanning new journal issues via the Web is beginning to play a similar role, particularly when there are alerting services which will notify users when new issues of specified journals are available.

Learning Objectives

Researchers should be aware of suitable bibliographic tools for identifying relevant journal articles.

Researchers should understand the importance of regularly scanning core journals and browsing journal shelves in libraries.

Researchers should be aware of relevant collections of e-journals and should understand how to search such collections and how to browse new issues and make use of email alerting services.

Book Reviews

As books form such a high proportion of the resources used by humanists, it is not surprising that book reviews should be a major information resource in most humanities disciplines. Garfield pointed out that in 1978, of the 85,000 source items covered by the *Arts and Humanities Citation Index*, 38,000 were book reviews.[69] As there is often a considerable time lag between publication of a book and publication of reviews, the prime role of the book review is perhaps not so much to inform scholars of new publications as to provide informed and considered assessment of the content of the works reviewed.

If this is the case, then book reviews continue to be of interest long after they have been published. This is borne out by the findings of a survey of U.S. historians conducted by Stieg.[70] The respondents to her survey listed book reviews as the third most useful tool used in locating references that they needed for research. For keeping current, they listed book reviews as the second most useful tool.

How do researchers locate book reviews? In some disciplines, there are one or more periodicals that specialize in publishing book reviews, but most journals include some book reviews, and researchers presumably locate these by regularly scanning the core journals in their field. Some of the databases and print bibliographic tools which index and abstract journal articles also index book reviews, but it is important to remember that others do not.

Learning Objectives

Researchers should be aware of the value of book reviews as an information resource and understand how to locate reviews of relevant books.

Articles in Books

Papers which have been collected into edited monographs are a significant type of information resource in the humanities. Thompson conducted a citation analysis of books and journals in a branch of literary studies and found that 14% of secondary works cited were "book articles."[71] Cullars analyzed 539 references in philosophy monographs and found that 14.5% were to "articles in books."[72]

Locating book chapters can present particular bibliographic challenges, as they are not indexed in library catalogues nor in periodical indexes. For this reason, it is desirable to devote special attention to the issues involved in locating information in this format.

Learning Objectives

Researchers should be aware of the importance of the "book article" as an information resource and of relevant bibliographic tools which list such works.

Theses

Stieg found that the U.S. historians whom she surveyed listed theses and dissertations as the sixth most heavily used format.[73] According to the DLF Data Set, 76.5% of researchers were using dissertations for their research.[74]

It is likely that researchers identify relevant theses from references in works that they have read, or via their networks of contacts with other researchers. Theses are often not included in standard bibliographic tools and researchers may not be aware of the specialist databases that index them. Once identified, they can still be difficult and expensive to access. The development of digital repositories of theses may alleviate these problems in the future.

Learning Objectives

Researchers should be aware of the value of theses as an information resource and understand how to identify relevant theses.

Researchers should be aware of the problems involved in obtaining copies of theses.

Unpublished Material

The importance of manuscript material necessarily varies from discipline to discipline. Stieg found that the U.S. historians whom she surveyed listed manuscripts as the third most heavily used format.[75] The RSLG Study found that 50% of respondents considered rare books and manuscripts to be essential for·their research.[76] According to the DLF Data Set, 85% of respondents were using manuscripts and other primary source documents for their research.[77]

The uniqueness of manuscripts makes them particularly difficult to identify and locate. The DLF Study reported that

"despite numerous projects under way to post finding aids to special collections on the Web, none of the scholars reported having consulted them. Scholars identified collections through colleagues' suggestions or by making informed guesses as to where collections of relevance might be located and then corresponding with the presumed repository."[78]

Learning Objectives

Researchers should be aware of the value of unpublished material as an information resource and understand the challenges involved in identifying and accessing relevant documents.

Web Resources

According to the DLF Data Set, about half of respondents reported that at least one quarter of their information needs for research were available online.[79] It is likely that respondents included online bibliographic resources and electronic versions of print journals when they answered this question.

In her survey of historians at the State University of New York, Andersen found that by 1996 just over a third of her sample had begun to use Web pages.[80] The DLF Study reported that "views on the quality and utility of Web resources vary greatly. The Web is used more for teaching than for research."[81] Thompson conducted a citation analysis of books and journals in a branch of literary studies, mostly published in 2001. She found that the number of Web sites cited in those works was negligible.[82]

It appears then that, while the Web is being widely used to access bibliographic databases and full-text collections of e-journals and e-books, other Web resources are still of limited interest to many researchers. This may indicate that there is little useful material available in this format, or it may indicate that researchers are unable to locate relevant Web sites.

Of the 33 scholars in the DLF Study, "three scholars talked about Voice of the Shuttle as the Web site that provided them with the most valuable links."[83] This indicates that at least some researchers are making use of specialist gateways to Web resources, but the RSLG Study concluded that "the case for mediated subject gateways and portals—both national, such as the Resource Discovery Network, and institutional—has clearly not been made convincingly to researchers across all subject fields. It also appears that many researchers are simply unaware of the existence of mediated subject gateways."[84]

Learning Objectives

Researchers should understand how to locate specialist gateways and search engines that may help to identify relevant Web resources.

Other Formats (Discipline Specific)

There are many other formats in which relevant information may appear. Some examples are newspapers, microforms, maps, films, videos, sound recordings, pictorial material, photographs, slides, computerized data sets, statistical collections, government documents, and music scores. The importance of such formats will depend on the discipline and the specific research project. Each format presents its own problems in terms of bibliographic control and physical access.

Learning Objectives

Researchers should be aware of other formats in which relevant information may appear and should understand how to identify and access such materials.

CONCLUSION

The author has used the above syllabus (or variations on it) in the planning of information skills classes for researchers at the University of Queensland, and response from trainees has usually been positive. Teaching is an interactive, dynamic process, and every lesson plan is subject to constant review as a class progresses. A syllabus such as the one outlined above is only a framework for developing a program which will meet the needs of a specific user group. Librarians who are involved in teaching information literacy skills to postgraduate researchers will be familiar with the experience of confronting a group of trainees who have extremely specific, and extremely diverse, information needs. There is no simple formula for designing courses appropriate for such groups. Every research project is unique, so the training needs of every researcher are unique. The message of the present paper is that, in designing courses, our decisions should be based on what we have learnt from the literature on the information habits of humanists, and not merely on guesswork or preconceptions.

To establish a syllabus, or series of learning objectives, is only the first step in conducting an information literacy program. Many issues remain to be resolved: how to teach the skills, how (and whether) to mix face-to-face training with Web-based delivery, how to integrate the program into the professional development of the researcher, how to assess and evaluate, and how to obtain the cooperation of academic staff, especially those supervising research students. But that is another story.

APPENDIX A. CONSOLIDATED LIST OF LEARNING OBJECTIVES

General Skills

Establish how information is disseminated in the discipline and understand how to identify the repositories (whether physical or virtual) which contain significant collections of relevant materials.

Be able to identify appropriate bibliographic resources, both print and electronic.

Be aware of the value of library catalogues as a bibliographic resource and be able to locate catalogues of other libraries via the Web.

Understand the factors which limit the usefulness of a bibliographic resource, such as chronological scope, types and language of resources indexed, currency, methods of indexing.

Be able to search databases effectively, particularly with regard to choice of search terms, use of controlled vocabulary (where available), use of Boolean operators and design of search strategy.

Be aware of the importance of keeping up to date with new publications and be able to develop strategies for achieving this.

Be aware of the importance and limitations of inter-library loan services.

Understand the value of informal contacts with other researchers as an information resource.

Be able to identify electronic discussion lists and forthcoming conferences which are relevant to the area of research.

Be aware of the value of specialist staff in libraries and other repositories as an information resource.

Be able to use personal bibliographic software to organize references.

Specific Formats

Be aware of suitable bibliographic tools (including library catalogues) for identifying relevant books.

Understand the value of browsing library shelves to locate additional references.

Be aware of the value of an extensive personal collection of books, and identify sources from which to purchase new and second-hand material.

Be aware of major publishers in the discipline and be able to make use of alerting services which they offer.

Be aware of suitable bibliographic tools for identifying relevant journal articles.

Understand the importance of regularly scanning core journals and browsing journal shelves in libraries.

Be aware of relevant collections of e-journals and understand how to search such collections and how to browse new issues and make use of email alerting services.

Be aware of the value of book reviews as an information resource and understand how to locate reviews of relevant books.

Be aware of the importance of the "book article" as an information resource and of relevant bibliographic tools which list such works.

Be aware of the value of theses as an information resource and understand how to identify relevant theses.

Be aware of the problems involved in obtaining copies of theses.

Be aware of the value of unpublished material as an information resource and understand the challenges involved in identifying and accessing relevant documents.

Understand how to locate specialist gateways and search engines that may help to identify relevant Web resources.

Be aware of other formats in which relevant information may appear and understand how to identify and access such materials.

NOTES AND REFERENCES

1. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries and Other Information Sources: Current Patterns and Future Trends: Final Report* (Bristol: Research Support Libraries Group, 2002), http://www.rslg.ac.uk/research/libuse/ (accessed 30 November 2003), p. 75.
2. Margaret F. Stieg, "The Information Needs of Historians," *College & Research Libraries* 42 (1981): 549.
3. Debora Shaw and Charles H. Davis, "The Modern Language Association: Electronic and Paper Surveys of Computer-Based Tool Use," *Journal of the American Society for Information Science* 47 (1996): 933.
4. William S. Brockman and others, *Scholarly Work in the Humanities and the Evolving Information Environment*, CLIR Reports no. 104 (Washington, DC: Digital Library Federation and Council on Library and Information Resources, 2002), http://www.clir.org/pubs/reports/pub104/pub104.pdf (accessed 2 May 2003).
5. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, pp. 77–9.
6. Ibid.
7. Brockman and others, *Scholarly Work in the Humanities*.
8. Amy Friedlander, *Dimensions and Use of the Scholarly Information Environment: Introduction to a Data Set* (Washington, DC: Council on Library and Information Resources, 2002), http://www.clir.org/pubs/reports/pub110/contents.html (accessed 1 February, 2004).
9. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 44.
10. See for example Ellaine Broadbent, "A Study of Humanities Faculty Library Information Seeking Behavior," *Cataloging and Classification Quarterly* 6, no. 3 (1986): 26; Roberto Delgadillo and Beverly P. Lynch, "Future Historians: Their Quest for Information," *College & Research Libraries* 60 (1999): 253.
11. Stephen E. Wiberley, Jr. and William G. Jones, "Patterns of Information Seeking in the Humanities," *College & Research Libraries* 50 (1989): 642.
12. Stieg, "Information Needs of Historians," p. 554.
13. Virginia Massey Burzio, "The Rush to Technology: A View from the Humanists," *Library Trends* 47 (1999): 631.
14. Deborah Lines Andersen, "Academic Historians, Electronic Information Access Technologies and the World Wide Web: A Longitudinal Study of Factors Affecting Use and Barriers to That Use," *Journal of the Association for History and Computing* 1, no. 1 (1998), http://mcel.pacificu.edu/history/jahcl1/Anderson/Anderson.HTML.
15. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 60.
16. Friedlander, *Dimensions and Use*, table 68.
17. Kevin M. Guthrie, "Lessons from JSTOR: User Behavior and Faculty Attitudes," *Journal of Library Administration* 36, no. 3 (2002): 117.
18. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 58.
19. Marcia J. Bates, "The Getty End-User Online Searching Project in the Humanities: Report No. 6, Overview and Conclusions," *College & Research Libraries* 57 (1996): 519.
20. Brockman and others, *Scholarly Work in the Humanities*, p. 19.
21. Constance C. Gould, *Information Needs in the Humanities: An Assessment* (Stanford, Calif.: Research Libraries Group, 1998), p. 53.
22. Brockman and others, *Scholarly Work in the Humanities*, p. 20.
23. Stephen E. Wiberley, Jr., "Subject Access in the Humanities and the Precision of the Humanist's Vocabulary," *Library Quarterly* 53 (1983): 430.
24. Geraldine Walker, "Searching the Humanities: Subject Overlap and Search Vocabulary," *Database* 13, no. 5 (1990): 37–46.
25. Sara D. Knapp, Laura B. Cohen, and Donald R. Juedes, "A Natural Language Thesaurus for the Humanities: The Need for a Database Search Aid," *Library Quarterly* 68 (1998): 406–430.
26. Bates, "Getty End-User Online Searching Project," p. 520.
27. Deborah Shaw, "Bibliographic Database Searching by Graduate Students in Language and Literature: Search Strategies, System Interfaces, and Relevance Judgments," *Library & Information Science Research* 17 (1995): 334.
28. Ibid., p. 332.
29. Jennifer Wolfe Thompson, "The Death of the Scholarly Monograph in the Humanities? Citation Patterns in Literary Scholarship," *Libri* 52, no. 3 (2002): 129.
30. Brockman and others, *Scholarly Work in the Humanities*, p. 8.
31. Clyve Jones, Michael Chapman, and Pamela Carr Woods, "The Characteristics of the Literature used by Historians," *Journal of Librarianship* 4 (1972): 137–156.
32. Guthrie, "Lessons from JSTOR," p. 115.
33. Christine D. Brown, "Straddling the Humanities and Social Sciences: The Research Process of Music Scholars," *Library & Information Science Research* 24 (2002): 87.
34. Andersen, "Academic Historians."
35. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 62.
36. Delgadillo and Lynch, "Future Historians," p. 251.
37. Stieg, "Information Needs of Historians," p. 553.

38. Broadbent, "Study of Humanities Faculty," p. 26.
39. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 61.
40. Brockman and others, *Scholarly Work in the Humanities*, p. 11.
41. Andersen, "Academic Historians."
42. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 60.
43. Brockman and others, *Scholarly Work in the Humanities*, p. 12.
44. Delgadillo and Lynch, "Future Historians," p. 251.
45. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 62.
46. Ibid., p. 26.
47. Brockman and others, *Scholarly Work in the Humanities*, p. 24.
48. Stieg, "Information Needs of Historians," p. 551.
49. John Budd, "Characteristics of Written Scholarship in American Literature: A Citation Study," *Library & Information Science Research* 8 (1986): 192.
50. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 60.
51. Richard Heinzkill, "Characteristics of References in Selected Scholarly English Literary Journals," *Library Quarterly* 50 (1980): 361.
52. Broadbent, "Study of Humanities Faculty," p. 26.
53. Brockman and others, *Scholarly Work in the Humanities*, p. 24.
54. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 61.
55. Andersen, "Academic Historians."
56. Brockman and others, *Scholarly Work in the Humanities*, p. 19.
57. Thompson, "Death of the Scholarly Monograph," p. 132.
58. Friedlander, *Dimensions and Use*, table 68.
59. Heinzkill, "Characteristics of References," p. 355.
60. Ibid., p. 360.
61. Jones, Chapman, and Woods, "Literature Used by Historians," p. 152.
62. Ibid., p. 149.
63. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 60.
64. Brockman and others, *Scholarly Work in the Humanities*, p. 8.
65. Ibid., p. 18.
66. Ibid., p. 16.
67. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 60.
68. Guthrie, "Lessons from JSTOR," p. 112.
69. Eugene Garfield, "Is Information Retrieval in the Arts and Humanities Inherently Different from That in Science? The Effect That ISI's Citation Index for the Arts and Humanities is Expected to Have on Future Scholarship," *Library Quarterly* 50 (1980): 45.
70. Stieg, "Information Needs of Historians," p. 554.
71. Thompson, "Death of the Scholarly Monograph," p. 128.
72. J.M. Cullars, "Citation Characteristics of English-Language Monographs in Philosophy," *Library & Information Science Research* 20 (1998): 55.
73. Stieg, "Information Needs of Historians," p. 551.
74. Friedlander, *Dimensions and Use*, table 68.
75. Stieg, "Information Needs of Historians," p. 551.
76. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, p. 60.
77. Friedlander, *Dimensions and Use*, table 68.
78. Brockman and others, *Scholarly Work in the Humanities*, p. 14.
79. Friedlander, *Dimensions and Use*, table 35.
80. Andersen, "Academic Historians."
81. Brockman and others, *Scholarly Work in the Humanities*, p. 29.
82. Thompson, "Death of the Scholarly Monograph," p. 131.
83. Brockman and others, *Scholarly Work in the Humanities*, p. 19.
84. Education for Change Ltd., SIRU (University of Brighton), and The Research Partnership, *Researchers' Use of Libraries*, pp. 45–6.