SESSION VI

Literature management

The information specialist in a changing world

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What is an information specialist?

Traditionally, the information specialist, or documentalist, is a professional searcher who performs the tasks of converting the requests of the customers into search terms suitable for the selected database(s), of communicating with the online host and database through the search language, and, most important, of making accurate decisions as a response to the search result, which is displayed as number of hits. Since access to online databases is charged pr. minute, decisions must be made fast, and the searcher must be able to rearrange the search statement, and to recombine the search terms, in order to obtain a high-quality search result which covers the request of the customer without including too many irrelevant documents.

The professional database searcher decides which database or combination of databases should be used for the specific question, and where and how best to access the selected combination of databases. This requires knowledge of numerous database services, and the use of several search languages must be mastered as a routine.

The information specialist in the past

In 1967, when the Documentation Department of DNLB was founded, few persons had access to computers. The academic staff searched online databases via modem, from computer terminals. The user had to be a registered customer of the database service to gain access to the databases. The search language had to be learned in advance, and knowledge of the command language was necessary. The most important support for training and maintenance of the skill were the database manuals and the online training files (smaller versions of the real databases, usually provided for free).

Through the 1970's the major role of the information specialist was to perform searches for researchers and others, who did not have access to online hosts, and/or who did not possess the knowledge of the databases, the skill of managing the computer, or the search language.
The electronic development

Through the 1980's, personal computers became economically accessible. The use of computers became routine in most research departments, and user-friendly software was developed. CD-ROM databases were purchased at research libraries.

In the 1990's, a virtual explosion in the number of personal computers occurred. As Microsoft Windows became available, almost anyone could use a computer without previous instruction, and professional as well as recreational software (games) became widely available. Most Danish libraries give the public access to computers with several CD-ROM publications, and to the Internet.

How to search

Users may believe the databases are easy to use, because the software is. However, the greatest difficulty in searching a database is not gaining access, nor is it knowing the search language. These hurdles are easily surpassed with the appearance of bibliographic databases on CD-ROM, combined with a Windows-based user interface.

The real questions are: Which databases contain the required information? How should these databases be searched in order to retrieve the relevant references? In which form (print, download) and format (selection of fields) should the result be presented? The question of languages is also controversial. Many users want to limit their search to articles in languages they are able to read. Nevertheless, if you are searching information within a specific topic, you ought to be aware of the existence of publications in all languages. And, in most bibliographic databases, the record is in English, and the title and the abstract are translated into English. Even articles in Russian may be valuable to see for the non-Russian-speaking scientist, as figures and numbers will be understood, Latin terms will occur in Latin letters, and most of the cited references will be in English.

The information specialist as instructor

The professional searcher will have to guide the amateur user through the jungle of search facilities. The instruction is given at formalised courses, and as emergency help, the latter usually over the telephone, via E-mail or as "at the keyboard" assistance.

Examples of emergency help:

Complaints about the system "not working", because the user searched for "A" and "B" and "found nothing, although there must be plenty".
Finding the problem:
1) "Which database are you searching?" (Medline).
2) "Which topic are you looking for?" (stress).
3) "Why did you choose that database for that topic?" (it is the only one I know).
4) "Which search terms did you use?" ("adrenalin" and "humans").

The guidance could be:

1) adrenalin should be spelled adrenaline; 2) the correct search term is epinephrine; 3) in the selected database, it is "human", and you may specify it to the "TG" field; 4) do not use "and" in the first search statement: search the terms separately, then combine. Then you will know where it went wrong.

"Do you wish to attend a free introductory course?" "Yes please."

Query:
"I downloaded exactly as you told me to, but the floppy disk is empty!"

Guidance:
"The download is in DOS format, not "wpd", "wri" etc. Are you certain your word processor or file manager is customised to show "all files"?"

"Shall I send you our download guide?" "Yes please".

Volunteered guidance:
"Why do you search for "fatness"? The correct search term is "obesity"!"

The user's answer:
"Because I tried "obesity", but I got too many records, so now I use "fatness!"

"Do you wish to attend a free introductory course?"
"No thank you, this works fine."
(I shouldn't have listened to you in the first place!)

Databases are not uniform

Many users "mix" the databases, not realising that indexing systems, fields, field codes and keywords differ. Journal abbreviations and authors' names may appear in different versions; and CAS Registry No.s and EC (Enzyme Commission) No.s may be mandatory in only some of the selected databases. A mixed download from several databases will be a disaster when the user attempts to import the file into a reference-handling programme.
Synonyms etc.

Many users believe that "the systems knows" about synonyms, British vs. American spelling, plurals etc.

Acronyms
Many users are accustomed to specific abbreviations or acronyms within their own research field, and thus cannot imagine that the term could have other meanings.

Example: "Everyone knows UFR means urinary filtration rate." *
A quick search reveals more than 20 different meanings of UFR.

The first 10 "hits":
urinary flow rate(s), (urodynamics);
urine flow rate, (urodynamics);
ultrafiltration rate, (blood pressure, dialysis);
ultrafiltrate flow rate, (pharmacokinetics);
unusual folding region, (protein chemistry);
upstream flanking regions, (alpha-globin chain, haemoglobin);
ultrafiltration reactor system, (enzyme kinetics);
ultrafiltration retentate, (dairy products);
phage-U3- and FhuA-specific-agent- resistant, (E. coli mutant phenotype);

Unit, de Formation et de Recherche, (in the address of French University Departments).

*) A physiologist tells me the correct term is: "glomerular filtration rate" (GFR).

Precise searching versus "trial and error"

Whereas most online services allow a limited number of fields, including titles, to be viewed for free, the CD-ROM gives the user the possibility of browsing the full search result. Thus, CD-ROM databases may be searched on a "trial and error" basis: the user types the proposed word or synonym, views the result and finds the correct search term in the indexed fields. Many amateur searchers prefer to select the interesting references from a wide search by reading abstracts and marking records (which is time-consuming), rather than by narrowing the result by improving the search strategy.
Electronic handling of references

The handling of literature references is facilitated by software allowing the users to create their own personal databases, and to generate formatted lists of references. One of the most time-consuming problems for the information specialist is how to download from different databases/database services. The larger CD-ROM "hosts" communicate with the manufacturers of reference handling software to assure that the downloaded records are compatible. (Despite of this, the upgrade to WinSPIRS 2.0 gave difficulties, but these were solved with the conversion programme "Refize"). Some online services demand that the end-user has (and pays for) a multi-user licence in order to download in a format suitable for database import. The modern information specialist must have knowledge of different reference handling packages, and must be able to guide the users through the download procedure.

CD-ROM databases currently available at DNLB

Bibliographic databases:
"BIOSIS" (Biological Abstracts: BA and BA/RRM), from SilverPlatter (SP); CC Search (Current Contents), SP;
SCI-Search (Science Citation Index), from Institute for Scientific Information (ISI);
GeoRef (Geological Reference File), SP;
MathSci (Mathematical Sciences Database), SP;
BioEthicsline Plus, SP;
CINAHL (Cumulated Index of Nursing & Allied Health), SP;
EMBASE (Excerpta Medica), SP;
MEDLINE (Index Medicus), SP;
Zoological Record, SP.

Journal information database:
SERLINE, SP.

CD-ROM courses at DNLB

The biologists of the Documentation Department teach literature searching in CD-ROM databases "BIOSIS" (Biological Abstracts, BA & RRM) and Zoological Record. The medical doctors of the Department teach MEDLINE, EMBASE and CINAHL. Free basic courses take place every month through the semesters, and advanced courses as needed: 2-8 times/year. The participants are pre- and postgraduates with a background in life sciences and related areas: physicians, biologists, biochemists, veterinarians, pharmacists, and chemists. Courses for Ph.D.-students and companies are arranged on request.
Reference handling courses at DNLB

The biologists of the Documentation Department teach electronic reference handling, using Reference Manager. ProCite Courses are arranged on demand. The participants are advised on how to create personal databases containing records within their field of research. The personal database is used as a tool to facilitate filing and retrieval of reprints, and to add personal comments to the records. Manuscripts written in major word processors are formatted for selected journals, and bibliographies created. The participants may bring their own downloaded references.

Internet courses at DNLB

Through the last two years, Internet courses have also been held at DNLB. The courses deal with 1) how to search the Internet for biomedical information, 2) how to create a Home Page, and publish material in HTML format. The prospect of searching and retrieving biomedical information through Internet Explorer, Mosaic or Netscape interfaces attracts many researchers and students. Few of them realise that the information is rarely standardised and indexed, nor is it peer reviewed. The use of Boolean search operators is limited and the effect of "and" is neither uniform nor predictable since there is large variation in the length and format of the "documents". The Internet may be used as a route of access to formalised databases, either through the traditional database services (Knight-Ridder, ESA-IRS, DIMDI, MIC etc.) or for instance "free MEDLINE". The online catalogues of Danish research libraries are accessible via the Internet: COSMOS at DNLB, PHARM at the Danish Pharmaceutical University, Agroline at the Danish Veterinary and Agricultural University. The CD-ROM databases at DNLB are accessible from the University of Copenhagen.

Today’s information specialist

The modern information specialist has a vast knowledge of major and minor databases, online hosts, CD-ROM manufacturers, file formats, and reference handling packages. Problems occurring when systems are upgraded and not fully compatible with existing systems will have to be foreseen, and - ideally - the solution found and broadcasted before the upgrading takes place.

The modern information specialist yields emergency assistance, often over the telephone: guiding the user through the program facilities, ensuring that the programmes are customised to the specific use, that the correct file format is used, and the database service is specified correctly when importing into reference handling software.

Future perspectives

The information specialist of the future teaches end users to search literature in indexed databases, to search the Internet, to use the Internet as a route to known sources of information, and to handle the endless amounts of information available.

Will the traditional information specialist disappear?
The experiences at DNLB propose that:
as end users realise...
1) how time-consuming it is to produce a precise and sufficient search result,
2) that several databases must be searched to cover the research area,
3) that databases will have to be searched individually,
4) that CD-ROM databases are not updated as fast and/or as frequently as online databases;
... many of them will return to the professional searcher.
Whereas the amateur searcher may easily perform "in-between" or less important searches, fast,
precise and sufficient searching through a selection of databases demands professional skills.

Conclusion
Thus we suggest that in the future, there will still be a demand for the skills of the traditional
information specialist. However, the traditional skills must be supplemented with continuous
surveillance of the information jungle, and with updating and upgrading of knowledge. To alleviate
the time-consuming task of answering the same questions again and again, one of the future roles of
the information specialist will be the creation of FAQ's: lists of Frequently Asked Questions, with
the correct answers, to be published in newsletters, and on the Internet.

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Suggested reading:
Lange B. Medicinsk dokumentation og litteratursøgning [Medical documentation and literature

Bülow B, Cortsen M, Grindsted J, Lange B, Søvsten Sørensen K, Thomsen J.

Ussing AP. Danmarks Natur- og Lægevidenskabelige Bibliotek (DNLB):
Dokumentationsafdelingen er et serviceorgan for bibliotekets brugere, herunder forskere og

Internet addresses:
DNLB Home Page: http://www.dnlb.dk/eng/welcome.htmlx

CD-ROM (SP): http://www.dnlb.dk/dan/cd-rom/start.htmlx
(campus license, password required)

COSMOS via Telnet: telnet://cosmos.dnlb.dk
(users without personal password: use "cosmos")