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## Evaluation Criteria for Online, CD-ROM

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# ONLINE DATABASES

BY CAROL TENOPIR

## Evaluation Criteria for Online, CD-ROM

FOR YEARS searchers have discovered, often by accident, certain inconsistencies, omissions, or errors in databases that directly affect the search results. The need for better quality products was the focus of the much-publicized 1990 annual retreat of the Southern California Online Users Group (SCOUG) where retreat members generated an outline of evaluation criteria and called for the start of a "consumers' reports" of databases (see "Database Quality Revisited," Online Databases, *LJ*, October 1, 1990, p. 64ff.). In that same year, Anne Mintz of Forbes Inc. Information Center called for a user-interactive error-correcting FIXIT command.

A year and a half later, the movement seems to be gaining momentum, if not specific action as yet. Database quality and the need for users to get involved in evaluation was the most common theme at the December 1991 International Online Information Meeting in London, where searchers from all over the world discussed how they can better evaluate databases and make those evaluations readily available to other searchers. Before I report on that meeting, it is useful to picture all of the components addressed in evaluation.

### Database components

When evaluating databases, you are actually evaluating a number of separate but interrelated components. These are shown in the illustration. The *information content* is the information that is gathered or created by the publisher or producer. Secondary publishers of indexes and abstracts arrange bibliographic information and add value such as descriptors and abstracts to it. They then may distribute the content on a variety of media, such as print, CD-ROM, online, floppy

disk, or magnetic tape. The information content is independent of software and of the distribution media and may be evaluated separately, as the dotted line indicates.

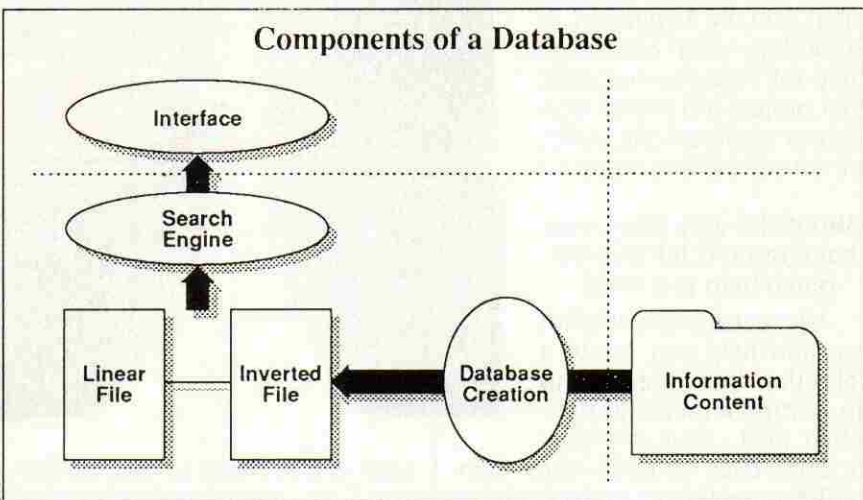
Software is used to transform the information into a database. All of the components stacked on the left of the illustration make up the *database*. First, database creation software processes the content to make the information searchable, creating inverted indexes (dictionary files) for searching that point to the linear file for displaying records.

The *retrieval software* (search engine) provides the search features and power that allow the inverted files to be searched. The user of a database is not explicitly aware of the rules used by the database creation software, but the rules determine what is searchable.

mode, or a Wilsonline command mode. DIALOG online offers either a menu mode or command mode. Other online and CD-ROM systems have a single interface aimed at either expert searchers or the infrequent user who wants to find something quickly with a minimum of instruction. In the CD-ROM future, a proposed Data Exchange Standard will allow users to select any interface of their choice to search any compliant CD database. When this happens, evaluation of the search and interface components is truly separate.

### Online evaluation criteria

How to separate the components for evaluation is viewed differently by different evaluators. At the London meeting, representatives from the Finnish Society for Information Ser-



For example, if a separate index entry is not created for publication year, it may not be readily searchable.

The final component of the database is the *interface*. The interface is how the user interacts with the search engine to search the database. The interface can do only what the search engine supports, but it may do it with menus, icons, templates, function keys, or commands.

Several systems offer a choice of interfaces. Wilsondisc, for example, lets each user select from a browsing mode, a WILSEARCH template

vices (FSIS) spoke for the online side, while I presented CD-ROM criteria.

Ritva Juntunen (Center for Continuing Education, Helsinki University of Technology, Finland) spoke for FSIS on "Quality Requirements for Databases—Project for Evaluating Finnish Databases." She brought the message for the need of an international quality evaluation movement among all database users, beyond just the databases of one country.

The criteria proposed by Juntunen's group focus on bibliographic online databases. The group proposes



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five main categories to evaluate: 1) connecting to system and communications; 2) search language and other technical aspects of the search; 3) content quality; 4) aids to information retrieval; and 5) costs.

**Connecting to the system** includes concerns unique to the online environment. They are dependent on the online host, the telecommunications network, and sometimes even the telephone infrastructure. Although these concerns affect the overall accessibility to databases, they are often outside of the power of the database producer. Under this category are included such questions as: Are these adequate hours of availability? Are there disturbances or overcrowding on the lines? Are there many steps to access the system? Can users change the password themselves?

**Search language** as described by Juntunen focuses on both the interface and the ability of the system to cope with telecommunications problems. In this category they include such concerns as: Is it menu-driven, command, or either? Does the search language resemble the Common Command Language (in the United States only OCLC's EPIC and the EasyNet gateway use CCL)? Can commands be abbreviated? Can the search or printing be interrupted? In breakoffs (voluntary or involuntary), will the search be saved in memory?

**Effectiveness of search program** refers to both the power of the retrieval software and how well that power is explained in the system documentation. A list is provided of expected features, including logical operators, positional operators, truncation (right/left), parentheses, combining sets, multifile searches, search by fields, free-text search, saving, sorting, and others.

**Contents quality** is mostly concerned with information content, but also gets into some of the ways that content is transformed by the database creation software. Evaluating what is actually included in a database focuses on such criteria as: Is a list of sources indexed available? Are selection criteria for sources followed consistently? Are appropriate sources included? Are abstracts and index terms included? Errors or mistakes are also evaluated here, including checking for misspellings, duplicate documents, transliteration errors, standard use of abbreviations, and accurate and consistent indexing. Also included in this category are update frequencies, cor-

rection frequencies, and how well each of these are documented.

**Aids** includes such things as the availability and thoroughness of manuals, user training, free practice time, and help desks. **Costs** evaluate the pricing principles (connect time or other), how much pricing information is provided online, and the invoicing arrangement and schedule.

For more information about the Finnish efforts to foster a worldwide quality movement see *Online 91: Proceedings of the 15th International Online Information Meeting, 10-12 December 1991, London, England* (Learned Information, 1991) or contact Ritva Juntunen, Ylisrinne 1 as. 26, SF-02210 Espoo, Finland.

### CD-ROM evaluation criteria

CD-ROM makes the issue of evaluation even more important because purchasing a database on CD-ROM usually represents a large financial commitment. There may be several databases that seemingly cover the same material, but librarians may want to choose just the most useful and highest quality databases to purchase on CD-ROM.

In addition, CD-ROM offers a unique opportunity for evaluating the content, quality, and searchability of indexing/abstracting databases. It makes possible a level of evaluation that is too labor intensive or even impossible with print and is prohibitively expensive with online databases. With CD-ROM everyone can be their own evaluator.

Peter Jacso, my colleague at the University of Hawaii, has developed a series of tutorial sessions on CD-ROM evaluation techniques and has just published a book on the subject (*CD-ROM Software, Dataware, and Hardware: Evaluation, Selection, and Installation*, Libraries Unlimited, 1992). He presented sessions at the National Online Meeting in New York in 1991 and in May 1992 at the National Online Meeting he will do sessions on "How To Evaluate CD-ROM Dataware" and "How To Evaluate CD-ROM Software.") I presented a session at the International Online Meeting based on his evaluation criteria and methods for testing CD-ROM databases.

Jacso provides evaluation forms in his book, separated into four main categories. He evaluates 1) software, 2) "dataware" (e.g., how the information content is processed for search-

ing), 3) database, and 4) hardware. At the London meeting, I concentrated on dataware and database evaluation.

**Software** includes evaluation of the interface, search features, set handling, and output features. **Dataware** includes scope, content, and quality. **Database** includes accessibility, documentation/user support, installation, and terms/conditions. **Hardware** concentrates on evaluation of the CD drive and the interface card, including size, feature, speed, and compatibility.

The four areas of scope, content, quality, and accessibility are especially important information content quality issues.

**Scope** includes such things as the size of the database, what sources and how much of each source is included, time span covered in the database and for each title included in the database, and geographic coverage.

**Content** includes what fields are included, what value-added information (such as indexing or abstracting) is included, how the fields are arranged or structured, and how informative is the information in the file.

**Quality** includes such important things as the accuracy of the contents of the information, whether controlled vocabulary is used for indexing and how appropriately it is applied, how many of the records contain all information elements that should be there (completeness), and currency.

**Accessibility** means how the information in the file is searchable. It includes which fields and data elements have been selected as access points, precision of access points, how easily you can use any access point, and how complete each record is so you can rely on the consistent availability of each access point.

There are now many lists of criteria for database evaluation and a growing amount of discussion about what's needed. What searchers need to do now is to take this momentum and do something together. First dig, explore, and test using systematic criteria. Second, don't be quiet about the things, good and bad, you discover. Tell friends and colleagues at conferences, through Internet, and in print. Notify the database producers and vendors. Lobby for FIXIT commands and incentives for reporting errors. (Richard Reams of DIALOG said at the London meeting that DIALOG is working on implementing a FIXIT command.) Help database producers create the products you really want.