Discovery Tool

Simply put, a "discovery tool" is an electronic system used by libraries to tie together their many research systems into a single searchable system. Current discovery tools operate similar to Google, in that they pull information from all available sources, provide search capabilities, including searching full text, and then provide direct access to the full documents if they are available. No discovery tool currently covers all searchable library systems, but further development might see more inclusive searches in the near future.

Why a Discovery Tool

Libraries acquire "content" from many different sources in many different formats. In a library's collection a researcher will find books, government publications, maps, print magazines, newspapers, and journals, electronic article databases, videos, music discs, and much more. While the library's catalog has traditionally been the tool for searching for information owned by the library, the catalog normally does not include the capability of searching at the article level for materials that have appeared in magazines, journals, newspapers, and other collected works. A researcher normally will use the catalog to scour through the library's print and media collections and then use one or more of the library's research databases to search for articles that have been published in any number of periodical publications. While this approach has worked well over the years, the experience of using Google has raised user expectations of libraries even higher, so that the development of discovery tools as Google-like search interfaces for library collections was inevitable. Ultimately it makes sense that a library would strive to provide a single search for all of its resources, much as Google provides a single search for information available on the Internet.

What a Discovery Tool Does

Let's say that a library subscribes to 30 databases in order to help its researchers find information about articles published in a variety of magazines, trade publications, and research journals. Some of the databases might have article information that includes subject indexing, author indexing, and abstracts, while other databases might also have the full text of the articles in addition to the indexing. In addition to the research databases, the library also has an online catalog that helps its researchers find materials that are owned by the library and housed in its collections. Prior to the advent of discovery tools, researchers would need to search the library's catalog for information in its collections and then choose one or more databases to locate articles that would have been published in periodicals. There was no single search that would take care of everything that a library might have to offer.

The discovery tool offers researchers the possibility of covering a good portion of a library's resources in a single search. Note the words "good portion." Currently, no single discovery tool works with everything that a library has access to. There will still be some databases that do not interface with the discovery system that should be searched separately.

When a researcher uses a library's discovery tool, he or she can enter a search term or multiple search terms and search through the library's catalog and all of the library databases that work with the tool. In the case of databases that provide indexing and abstracts, that data is included in the search. In the case
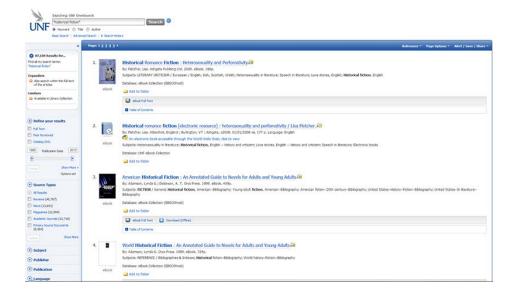
of databases that have full text, the full text can be included in the search. So, in one shot, the researcher can go through books, government publications, media, and all kinds of periodical articles in search of matches on a particular topic.

Results of a search are usually organized by relevance. Relevance ranking is usually determined by where the search terms match in the results. For example, items whose terms match in the subject headings for an article or book will usually get a higher ranking than those that match in the full text. Depending on the particular tool a library uses, the exact means of performing ranking might differ. Because these systems are proprietary, the library services companies which design the discovery tools won't release exactly how they rank items. One of the systems, the EBSCO Discovery Service, provides general background on their methods for relevance ranking. The following guidance on ranking is offered by EBSCO:

The EDS relevancy system has the following priorities and has no bias toward content from any provider:
- Match on subject headings from controlled vocabularies
- Match on article titles
- Match on author keywords
- Match on keywords within abstracts
- Match on keywords within full text
- Exact Matches: Exact matches are favored over partial matches—and consideration of the field(s) in which those words appear (abstract vs. full text vs. title, etc.)
- Density: The number of times the word(s) appears relative to the size of the document (more is better)—and consideration of the field(s) in which those words appear (abstract vs. full text vs. title, etc.)

In addition to providing a ranked listing of results, most discovery tools also provide "facets" that allow the searcher to narrow down the results even more. A facet is a descriptive aspect of the item matching the search and might include things like historical time period, geographical location, subject heading, author, type of material, and periodical title. Facets might appear in an array to the left or right of the results with an indication that choosing a facet will enable the narrowing of the results. By using the facets that appear in a search result, a researcher can easily narrow down a list of hundreds or thousands of materials to a more reasonable number of results. The screen shot below shows a search result in EBSCO's discovery tool with results displaying in the large panel and facets arranged in the left panel.

One of the biggest draws of the discovery tool system is its ability to link searchers directly to electronic content that is available in the researcher's library. Where a library might have a dozen or more full text systems, a single discovery tool links everything together so that these multiple systems appear seamless to the researcher. After all, why does a researcher utilize a library? To find information. Discovery tools make that process quite a bit easier.

What a Discovery Tool Can't Do

In spite of the power and relative ease of use associated with discovery tools, until all content providers cooperate in sharing information about their content, there will be things that a discovery tool will not be able to access. Some databases included in a library's subscriptions just won't work with some discovery tools. In those cases, a researcher who wants a comprehensive search of materials on a particular topic will need to be aware of any other databases the library has that could turn up additional resources related to his or her topic. For example, the major research database for literature is the Modern Language Association's *International Bibliography*. If a researcher is looking into articles about Tolkien's use of folk literature in the *Lord of the Rings* trilogy, he or she will certainly want to include the *Bibliography* as a part of the search for materials. If the discovery tool in use by the researcher's library does not work with the *Bibliography*, the researcher will want to search it separately to make certain that nothing has been missed.

Many databases utilize their own specialized vocabularies for providing subject access to the materials that they include. Since the discovery tool in essence "merges" many databases into one, the researcher should be aware that some databases might describe a specific topic one way while another database might use the same term in a different way. For example, the term imagery will be used in a different manner in a literature database than it will in a psychology database. Therefore a researcher will need to use better description in a search for articles on imagery in T. S. Eliot's poetry so that there aren't so many mismatches that turn up articles from disciplines other than literature.

The Power of Discovery

By and large, the advent of discovery tools as a means for integrating a library's many disparate collections is a powerful development in making libraries more "user friendly." The whole purpose of the library is to facilitate a researcher's discovery of relevant information on any topic. The library's provision of a discovery system that brings a search to bear on most of its materials at one time goes a long way toward simplifying the research process.

Reading by Jim Alderman. Updated March 2014.