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The evolution of electronic reference sources

Amy S. Van Epps
Purdue University, vanepa@purdue.edu

AUTHOR
Amy S. Van Epps
Engineering Librarian
Coordinator of Instructional and Circulation Services and Library Coordinator
Purdue University Libraries ENGR
504 West State Street
West Lafayette, IN 47907-2058
Phone: 765-496-7680
Fax: 765-496-3572
Email: vanepa@purdue.edu
www.lib.purdue.edu/engr/amy/

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ABSTRACT

The Evolution of Electronic Reference Sources
Amy S. Van Epps
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Purpose
To provide a historical look at the development of web versions of reference materials and discuss what makes an easy-to-use and useful electronic handbook.

Design/methodology/approach
Electronic reference materials were limited to handbooks available on the web. Observations and assumptions about usability are tested with an information retrieval test for specific tasks in print and online editions of the same texts.

Findings
Recommended adoption of those elements which create a well designed book in combination with robust search capabilities and online presentation result in an easy-to-use and useful electronic reference source.

Research limitations/implications
The small sample size that was used for testing limits the ability to draw conclusions, and is used only as an indication of the differences between models. A more thorough look at difference between electronic book aggregates, such as ENGnetBASE, Knovel® and Referex would highlight the best features for electronic reference materials.

Practical implications
Advantages to particular models for electronic reference publishing are discussed, raising awareness for product evaluation. Areas of development for electronic reference book publishers

or providers are identified. Work in these areas would help ensure maximum efficiency through cross title searching via metasearching and data manipulation.

Originality/value
The paper presents results from some human computer interaction studies about electronic books which have been implemented in a web interface, and the positive effects achieved.

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The Evolution of Electronic Reference Sources

INTRODUCTION

The ease with which electronic reference materials can be used is increasing, as development moves beyond a static representation of the print edition and begins exploiting the capabilities of the electronic environment. Presented here is an overview of the history and development of web-based handbooks and what may be driving some of the decisions behind the online options some publishers are offering. Technology has progressed to a point where electronic information is at less of a disadvantage and more materials are becoming available online. (Webster, 2003) User preference seems to be for electronic information whenever they can get it. (Lehto, Zhu & Carpenter, 1995; Marcum, 2003; Gray & Langley, 2002) Development of online materials during the last 8 years, particularly reference materials, compelled the discussion of why people would use an electronic version that appears to take longer to access than the print, and may not be as easy to use. When a resource is available on the desktop it can save a trip to the library, and therefore be perceived as saving time. This article examines why electronic may be preferable in some situations and not others. Discussion is not restricted to locating information online, but includes reading and using the data as well.

The literature about electronic resources includes articles discussing user interface and usability, (Tennant, 1999; Nielsen & Norman, 2000; Thong, Hong & Tam 2002) commentary or reviews of particular products, (Gibson, 2002; Kirkwood, 1996; DePetro, 2000; Arnold, 2004) and bibliographies with commentary about those reference materials which are available in electronic format. (Juhl, 2001; Wilkinson, 2002; DiBianco & Chapman, 2003) Discussion of the best format for particular types of information, or why publishers would choose to pursue the electronic environment can be found in the Virtual Book and WEB book experiments.(Landoni, Wilson & Gibb, 2000; Wilson, Landoni & Gibb, 2004) Materials currently available electronically are largely the result of transferring print materials to an electronic format, with the occasional inclusion of information that cannot be incorporated in print, such as music. Culp (2002) discusses the new life given to several multiple volume reference sources in chemistry, by a switch to a searchable electronic format. Current electronic reference materials show that unwieldy print sources can become usable and user-friendly in electronic format and thereby gain speed of use and functionality. The nature of electronic resources will continue to change and develop as the materials are natively produced in electronic format. (Lynch, 2003)

BACKGROUND

For the purposes of this article, electronic resources refer to electronic versions of reference sources, primarily handbooks, and specifically web-based versions. CD-ROM versions will not be considered for a number of reasons. CDs typically run on stand-alone, dedicated

computers in the library, and thereby do not address the desktop delivery needs of many of today's users. In some instances a CD resource is added to a campus network, but there is still a need for the user to install software to ensure the native interface will run properly as a remote application. Additionally, CDs often use programs that have been written specifically for a given computer type and are designed to access specific data, which can allow for more programming flexibility than is available in a web interface. Comparisons between the two technologies are difficult to make.

Handbooks are often described as a single volume, written for practitioners in a field to be used as a quick resource for facts, figures and equations relevant to their discipline. Handbooks are most common in scientific and technical fields of research. Other types of handbooks exist, but a single volume or two volume set is the primary content focus for this discussion. Handbooks are a useful tool for finding an item of information when the book is easily accessible (i.e. sitting within easy reach, for example on a shelf over the researchers' desk or in their lab). As pointed out by Culp (2002), "[handbooks] are used for consulting, not reading." This consultative use is referred to as 'reading-to-do' use by Lehto, Zhu and Carpenter, (1995) and is the reason Landoni, Wilson and Gibb (2000) used scientific books for their experiments, which are typically used in this fashion as opposed to being read linearly. Handbooks become inconvenient to use when they are not easily accessible (i.e. down the hall or even several buildings away in the library). Without a convenient resource a user faces a decision: whether the time it would take to make a trip to the library to find the information is worth the effort, or if there might be another way to get what they need. A nearby resource will seem more convenient, even if completely unsuited or inefficient for the task at hand. With ubiquitous Internet access in academic settings, the trend is for a researcher to go online to find the needed information. If handbooks are in electronic format, researchers can have access from their desktop computer, thus eliminating the proximity issue and increasing the ease of use. Evidently, since libraries are showing lower gate counts, (i.e. numbers that say just how many people are entering the library) people are no longer going to the library to take the book off the shelf. However, if the electronic interface is cumbersome, not only is it faster to visit the library to use a print copy of the handbook than work through the one online, it could forever turn a user off the resource. (Nielsen & Norman, 2000) Thus more convenient and user-friendly ways of delivering the library collection must be built.

Perceived ease-of-use or availability is only part of the usability equation. For some people, the desire to find the information online outweighs the need to visit the library. (Webster, 2003; Subramanian, 1998; Gray & Langley, 2002; Marcum, 2003; Landoni, Wilson & Gibb, 2000) Lehto, Zhu and Carpenter (1995) demonstrated a user preference for electronic text with online books using hypertext, even for tasks shown to be poorly suited to electronic presentation. For those people, any progress in delivering resources online will be accepted as a positive change.

Added ease-of-use and functionality of electronic books has been shown to generate a positive user response. (Catenazzi & Sommaruga, 1994; Landoni, Wilson & Gibb, 2000; Wilson, Landoni & Gibb, 2004) Combine the added functionality with the advantages gained from one company producing and providing the interface for a collection of electronic handbooks and a model such as Knovel® appears. This model combines an ability to search any word on any page of a collection of handbooks, familiar page representation via Adobe Acrobat PDF and the ability to select and manipulate data from handbook tables. The model represented by Knovel® is a natural evolution of the positive elements of an e-book as shown in the WEB book

experiments. These include user requested enhancements (Landoni, Wilson & Gibb, 2000; Wilson, Landoni & Gibb, 2004), which result in users being able to retrieve exactly what they need with a minimum of scanning to find their information. Many of these functions were available with custom programs years ago, (Catenazzi and Sommarugs, 1994; Lehto, Zhu and Carpenter, 1995) but only in the last few years have all the pieces been available for this type of service to be web accessible in a cross browser compatible fashion. Users can browse the pages of the text, navigate via the table of contents or index if desired, while choosing to search will return information presented anywhere on a page, including table captions and column headings. Specific advantages presented by the knovel model include interactivity, such as an equation accepting direct user input at the click of a mouse. (Arnold, 2004) Similarly, active tables allow users to manipulate and extract data quickly and thereby save time in data analysis. (Gibson, 2002)

As computers have gotten faster and web response times have sped up, loading large PDF files has become less time consuming. Given that PDF can be cumbersome to use, it may be surprising that it is used heavily in electronic resources. The main reason for this is that it "reproduces a book's graphics, page layout, fonts and other elements with high fidelity", which is exactly what Adobe developed the product to do. ("Mind your…", 2000) Huttenlocher and Moll (2000) make the case that the graphic layout and design of the paper page is important in conveying the information and meaning, so pages need to be reproduced accurately. Adobe's intent when developing the Acrobat software during the early 1990's was to create a method by which people in a company could share a document, review it and mark changes in it and all see exactly the layout and font the original author intended, regardless of what computer platform they used to read the document. (Carlton, 2003) Len Kawell, director of e-book development at Adobe Systems, Inc., believed the high fidelity reproduction of a page makes PDF the ideal format for reference sources, ("Mind your…", 1998) although others disagree. If the layout is truly essential to the presentation and understanding of the information, then PDF, TIFF or DigiPaper is well suited to the task. If information can be enhanced by being presented in tables where the user can manipulate the data, or combine information from different locations in one book, then layout takes a secondary role to usefulness. (Webster, 2003)

Web capability is the lowest common denominator for widespread accessibility where there is likely to be a mix of Wintel, UNIX and Mac computers. This level of availability makes the web the preferred delivery mechanism for electronic content. Development of interactive, easily usable web versions of handbooks has taken longer than for other reference sources due to the pace of web development. Publishers appear to have been waiting for web technology to catch up with programming capabilities in multiple platform and browser friendly environments. Early in web development, client-side small application processes were able to run on Wintel machines using Java. These programs are called applets. Despite claims that Java ran on all machines, Java programming was not the same for Wintel and Mac machines. Therefore, using Java applets for an interactive reference source meant cutting out a part of the user population (generally those on Macs). Quirks still exist between browsers, as some follow the standards closer than others. If a program or interface has been written for a specific browser (e.g. Internet Explorer), it is possible all or part of it will not run when a user accesses the site with Mozilla, Opera, Netscape, Safari or any number of other browsers. This is a large hurdle developers face in creating usable online handbooks.

Use of the web developed before PDF became a widely accepted format, so the limitations of Hyper-text Markup Language (HTML) dictated some of what was available in

electronic format and how it was presented. HTML focuses on textual content and its appearance. The HTML standard provides authors with the ability to include headings, text, tables, lists, and photos; retrieve online information via hyperlinks; design forms for gathering information or feedback; and including spreadsheets, video clips and sound clips directly in the document. (W3C recommendation, 1999) All of these pieces fit together and allow the author to control the general appearance of a webpage, but not the exact layout of pieces of information and how they may appear in relation to one another, as those variables are generally determined by the computer, browser and screen resolution being used to view the page. Dictionaries, encyclopedias and other materials where the content is primarily textual were converted to web-based formats before handbooks most likely because the information is more easily adapted to HTML, being less constrained to precise page layout. Linking sound and images with the text is relatively simple and provides an added value to the printed material. Thus, for relatively static information, like an encyclopedia article, dictionary entry, or other known-item search, HTML is suitable. However, for data-rich content, where research and discovery of information is the intended use, more sophisticated solutions are needed.

RESPONSE TIME AND TESTING

During early development of online handbooks, it took less time to grab a paper copy of a resource and look up an item than to navigate the web version. Take, for example, an early online version of the *Statistical Abstract of the United States*, [1] a useful source well suited to print format. The first online incarnation of *Statistical Abstracts*, in approximately 1996, consisted of scanned PDF versions of all the pages in the book, including the index. Portable Document Format (PDF) was an emerging format in the early 1990s, developed by Adobe Systems, the purpose of which was to ensure the same representation of a page of information on all machines, regardless of operating system, etc. To be able to read the files, the users' computer needs to have an additional piece of software, Adobe Acrobat Reader. No searching was available. This is still the case with the online version of this source. To look up information it is necessary for the user to load PDF pages of the index, scan these pages to find a table number, then return to the web page table of contents, load the PDF of the desired chapter of the book and manually scroll through each page in this chapter to find the needed table.

For purposes of rough comparison, a simple timing experiment was done by the author using print and electronic versions of *Statistical Abstract*. The task was to look up one fact in the given resource and the amount of time elapsed to find the information was recorded. With the print resource, timing began with the book in hand. For the electronic version of the source, timing began with the browser already at the main page for the resource. Three people, who had varying levels of experience with the source, were timed for each search and the time and average are shown in Table 1.

The task was to use the 1999 *Statistical Abstracts* to look for the percentage employed as engineers in 1998 who were women.

User	Time in seconds for print	Time in seconds for electronic
User 1	54	152
User 2	210	375
User 3	61	104
Average	108	210.3

Search times in *Statistics Abstracts*

As seen in Table 1, the information look up in print took an average of just under 2 minutes. The search was then repeated online. In the electronic version, with a variety of computers, the information locating process took an average of 3 and a half minutes, as shown in the second column of Table 1. On a slower computer, the online process includes several steps that take long enough to be outside the tolerable wait time for most web users. (Nah, 2004) The last row of Table 1 shows the average numbers for the print and online look-ups, and it can be seen that with the two options equally available, it is faster to grab the print edition, if it is at hand.

Webster (2003) makes the point that for some resources, (e.g. dictionaries) the print is still the best and fastest options, and it seems that *Statistical Abstract* is one of those sources. For those who don't have easy access to a print copy, this cumbersome online delivery method stills saves time over traveling to the library. Since unlinked PDF files are still the method the Government Printing Office (GPO) uses to deliver *Statistical Abstract* online, it appears to meet a need for some users, and that usefulness can outweigh ease-of-use in some cases. Using straight PDF files is the least expensive method to make this information available electronically. Other options, including a searchable, interactive web index linked to the proper pages and tables, or PDFs employing Acrobats linking capabilities, would require more expense in programming and maintenance on the part of the GPO.

Machinery's Handbook, online via Knovel®, uses a full-text search engine and leverages Acrobat's capabilities, thus providing a more sophisticated solution for locating information. The result of the interface differences can be seen in a comparison similar to the earlier one on amount of time needed to perform a task. Using the same rough method as earlier, the task was to find the tensile strength of red spruce in *Machinery's Handbook.* Table 2 shows the times for each of the three users for the print, and online versions and the averages.

User	Time in seconds for print	Time in seconds for electronic
User 1	56	35
User 2	55	40
User 3	35	52
Average	48.6	42.3

Search times in *Machinery's Handbook*

The average look up time for the print edition was around 48 seconds. It seems an electronic book has to be well produced to be faster than the print, and the timing showed that the average time to locate the same information in the electronic format was about 42 seconds. By looking at the two average times in Table 2, it can be seen how using a searchable index and the computers

ability to scan the page for the desired information results in about the same amount of time spent on the task.

ISSUES AND CONSIDERATIONS

Usability includes more than a good user interface and quick response time, even though those two factors are important. The technology acceptance model (TAM), described by Thong, Hong and Tam (2002) is a measure of perceived usefulness and perceived ease-of-use (usability) that helps determine a persons' likelihood to use a resource and can be used to test electronic resource acceptance. A cumbersome or unwieldy user interface is one reason users may continue to use the print option, or a different web option, when available. (Nielsen & Norman, 2000) With some print reference sources, not only is the organization of information more familiar and therefore more comfortable, but in cases of a poor interface or slow response time online, faster to use. While the user interface and response time are vital in establishing regular use of an item, much more is involved in creating an efficient electronic handbook. (Nielsen & Norman, 2000; Thong, Hong & Tam, 2002; Nah, 2004) A resource must also be useful.

Creating an electronic resource should provide the ability to "transcend limitations inherent in the printed page". (Winter, 2000) In the case of the electronic version of resources such as *Statistical Abstract* this feat was not accomplished; they simply duplicated the print for online access. This model of static page images works well for electronic journals, when a user is looking for a specific article and will want the complete article. When the material being searched is a number or series of numbers in one table out of a chapter, a reader will not want to scan the entire chapter. Therefore, presenting these users with the whole chapter is a disservice.

When publishers decide to produce a resource electronically, they must decide if they will create the electronic version, or let someone else handle it for them. The publisher or content creator relinquishing control of interface design to another vendor is a model that appears frequently with electronic journals. With journals it is common for the publisher to work with an organization that is willing to host the electronic publications for them, by providing the computer, the interface and the support. If a product that goes beyond flat PDF copies of pages is desired, programming time, design time and computer space are required. It is not surprising that a small book publisher would follow a hosting model similar to that for some e-journals and look to a company willing to develop and host an electronic version of their material. This results in electronic book vendors who can offer a wide range of products, maximize programming and computer resources, provide a uniform interface and offer cross title searching.

Online resources leverage current common technologies and software to create the desired level of interactivity. These programs can include Adobe Acrobat, mentioned above, as well as Java, JavaScript, and Flash. There are several advantages to this approach for the interface provider, including a reduced load on their computers. Any data manipulation and rendering capabilities that can be performed on the client machine reduces the need for the server to handle functions. Another reason to leverage the currently common programs is because developing another reader or software plug-in that users would need to download is seen as a barrier to ease-of-use by patrons.

With online sources there are other hurdles in finding the needed information, for instance the time necessary to consult multiple 'books', compile the information needed from each and then continue with the research at hand. In another parallel with the e-journals model, one interface provider loading many different materials and using the same search interface can provide an economy of scale that becomes attractive. Knovel® has done this for e-books from

many publishers. ENGnetBASE [2] and Referex [3] are electronic handbook providers with cross title searchability, but they are limited to materials from a single content provider, or publisher. Limiting a researcher in this way for books is very much like a researcher who uses only ScienceDirect for finding journals articles; the search has not been comprehensive in a given subject. Instead it's been limited to one publisher. In a society inundated with information, the ability to maximize user efficiency is critical. The value of a researcher's time is important, and equates directory to dollars for companies. (Thilmany, 2003) It is important to maximize efficient use of that time, and delivering reference sources to the desktop saves the time a trip to the library takes (Gray & Langley, 2002). Therefore, the ability to search multiple sources in one location, even those which may be skipped by a user as out of scope, can save time and money.

Productivity is one of the driving forces behind the move toward electronic delivery of resources. In the "economy of human attention", or the time it takes a researcher to sift through the multitude of data that a search can return, less attention is given to each source, which increases the likelihood of missing pertinent information. "In an information society, the scare commodity is not information – we are choking on that – but the human attention required to make sense of it." (Lanham, 1997, p. 164) Therefore, any application which accurately pinpoints resources to be consulted and specific data within those resources will increase the efficiency of a person's time and effort.

When searching a large pool of knowledge for information, accuracy and relevancy of results is critical to success in today's society. Success in this area is one of the reasons Google™ [4] has become such a popular search engine. Highly relevant results save the searcher time, as evidenced by users who "vote" the only way they can, by using one source over another. Perceived ease-of-use and perceived usefulness have coincided to create a site where users are comfortable and productive, so they return.

SOLUTIONS AND RECOMMENDATIONS

Complete electronic delivery of information has been a goal for some publishers, and many users, not only because of accessibility but also because it "allows for the development of reference content that wouldn't be as feasible in a printed work". ("Mind your…", 2000, p.41) Some advantages presented by electronic access to books include rapid access to chunks of information via linked indexing, an ability to search the text and more frequent updating. (Catenazzi & Sommaruga, 1994; Landoni, Wilson & Gibb, 2000; Lynch, 2003; Winter, 2000) The goal of moving beyond the bounds of a printed volume means programming must be done to enhance usefulness. Generally in the area of encyclopedias, content enhancement means including multimedia, such as a music clip of Beethoven's Ninth Symphony linked to biographical information about the composer. The enhancement of handbook content includes adding functionality which becomes available only when the information is in electronic form and able to be manipulated. Linking between related pieces of information, fully searchable text and an interactive table of contents are important, along with interactivity features such as being able to sort a table into the most relevant order at the moment, graphing the information presented in a table, or comparing several items at one time on the same graph by choosing them out of a list of materials and properties (Landoni, Wilson & Gibb, 2000; Gibson, 2002; Wilson, Landoni & Gibb, 2004; Arnold, 2004.)

It takes both human and processing time to convert information in a static table (as displayed in a print resource) into a web table with the capability to manipulate fields. Many publishers are successful with the print versions of well known sources and are not visibly

dedicating resources to electronic development of their products, but in acknowledgement of the need for electronic access, have licensed their content to providers who develop and market the interface. In the model created by Knovel®, one company takes on the challenge to develop and enhance online access to books in particular subject areas, with the goal of bringing life and a new level of information usability to handbook data, and making it accessible at the desktop. Individual sources become easier to search for data in this online format, and by having one company put many resources online it becomes possible to search a collection of handbooks at once. A user does not have to make a "best guess" at what book might answer their question or progress through a number of sources until they find the right one. While a large portion of the over 600 titles included in Knovel® are not deep-searchable at this point (their name for titles including interactive tables, graphs and equations), cross-source searching is available, and the full capability of Adobe Acrobat's text search is put to use. Within an Acrobat version of a page or pages the user is taken directly to the first instance of the searched term and the word is highlighted.

Additional publishers are pursuing similar content searching and manipulation of data via the web, including CRC Handbook of Chemistry and Physics [5] and CINDAS Thermophysical Properties of Matter Data books [6]. Both sources are quite useful, but as stand-alone resources do not take advantage of cross-source searching. A researcher is expected to identify the right source and then search it. It may not be enough that using electronic sources may speed up the searching time and give new life to some older volumes that were cumbersome in print. If the first title chosen by the researcher does not contain the needed information, the researcher is in the situation that is always present in print format. They must choose another title and try again. Cross title searching takes out much of the guess work inherent in this part of an information seeking process. A user may still need to look at several titles to find what they need, but a full-text search usually turns up some additional references to the compound or data for which they are searching, and provides a starting place for more thorough investigation. Thus, the aggregate electronic search process is immediately more productive than making a best guess on a source.

FUTURE TRENDS

The future of online resources is in working with materials that are native to the electronic environment. (Lynch, 2003) Many handbooks have years of history in their fields as the primary trusted print resource, and that trust in a source must follow it to the electronic format. (Webster, 2003) Choosing to deliver the information in a different fashion does not change the information being delivered. In an attempt to maintain a level of comfort for users and a level of credibility for sources, materials are not yet being envisioned and created in a completely electronic mode. Many of the print features, like pages, are still present. The shift is beginning, but it will likely be another generation or two before users are ready to fully abandon a print metaphor in online resources.

XML and other programming developments that will allow for metasearching may be the answer to cross-title searching without all titles having to be digitized by one company. Metasearch technologies allow simultaneous searching, from a single access point, across many different information resources. (Mischo & Schlembach, 2004; Fryer, 2004) To make metasearching work, all players in the field must agree to follow standards and work with a system that will benefit everyone, not just themselves. (Webster, 2004) Metasearching is still in its infancy, and creating products that are capable of searching a variety of online sources from different publishers at one time has been a challenge. As an example, Knovel® has written and

uses a propriety system architecture to create its interactivity, which would need to be reconciled with any standards developed. Similar to metasearching of electronic journal databases, the combined search would not provide power searching capabilities. Those would continue to reside in the native interface for each resource. Standards development work has begun with NISO to look at authentication, standard search protocol, common descriptors and taxonominies, among other items. (Fryer, 2004) And while the future seems to reside with far reaching metasearching capabilities, many product vendors are not enthusiastic about working toward this model. (Webster, 2004)

CONCLUSION

Efficient use of time and money is critical for researchers, and the information glut that is part of everyday life slows people down. The time necessary to sift through all the responses to a general search, could be more effectively used by applying relevant information to finding a solution. When attention, searching and the location of information is streamlined, clearly focused and allows data manipulation into a format the researcher needs, an incredible edge is gained for searching.

Cross-title searchability and compatibility appears to be driving the comments from researchers in industry about the speed, accuracy and ultimate time savings involved in a product such as Knovel®. (Thilmany, 2003) The advantages the deep-searchable titles have to offer, even over other online versions of the same titles, are seen as worth pursuing.

The first steps have been made in streamlining the usability of handbook data in an electronic format, but more could be done. A case study of Knovel®, investigating their method for searching and presenting information online, their level of success in the field and the potential for expanding or licensing their technologies would be instructive. Investigation of the developing metasearching standards and discussion with Knovel® company representatives regarding the compliance of their e-book information could help raise awareness of the need for all electronic book companies to embrace the move toward cross-product searchability. A comparison study between several of the publisher specific online handbook collections (e.g. ENGnetBASE and Referex) with Knovel® could be used to further build on the WEB book experiments to define the best aspects of electronic reference material, particularly for a scientific community. The study could be used to determine more precisely where the line is between maintaining the familiarity of the book presentation and creating interactive data and when it is most logical to cross that line.

Full-text searching and results ranking algorithms could benefit from a close look and evaluation of the most effective methods for finding specific information. Most librarians cringe at the thought of searching the full-text of journal articles, so advances need to be made, or more widely adopted, which make full-text searching useable. Very accurate searching speeds up the research process and increases the usability, so it is worthwhile to determine how companies are determining accuracy of the results when searching entire books. Knowing the current process for a variety of companies will inform all of the possibilities and can only improve full-text searching.

There is much more to do, particularly to include the data from companies which ignore standards and continue to create their own online versions instead of contracting with another vendor. Additional research on the application of metasearching to electronic books and other content beyond library catalogs and online databases could ensure that future metasearching engines can handle the full scope of electronic materials available. Once electronic book

materials are searchable through a single interface that offers comprehensive topic coverage, the productivity of researchers will increase, and access to information will be enhanced for everyone. Since, "... the library's business is orchestrating human attention structures", (Lanham, 1997, p.165) it is the librarian's job to find sources which can best provide fast, accurate results for users.

NOTES

[1] http://www.census.gov/prod/www/statistical-abstract-us.html
[2] http://www.engnetbase.com/
[3] http://www.ei.org/eicorp/referexengineering.html
[4] http://www.google.com
[5] http://www.hbcpnetbase.com
[6] https://cindasdata.com/Products/TPMD

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