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Elizabeth McKenzie

Suffolk University, emckenzi@suffolk.edu

Susan Vaughn

Suffolk University, svaughn@suffolk.edu

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PCs and CALR: Changing the Way Lawyers Think

By Elizabeth M. McKenzie¹ and Susan Vaughn²

Abstract: Computers are changing the way lawyers and judges think. The authors measured differences in analogical reasoning in briefs and decisions written before computers were used in law, and now. They argue that the changes found mandate changes in legal education, that students need more emphasis on careful reading and analysis.

INTRODUCTION

A sea change is well underway in the world of legal research, driven by full-text searching and the use of personal computers for desk-top research and word processing. Reliance on personal computers and legal databases has changed the way lawyers think when they do legal analysis. Many librarians, judges, and lawyers believe they see this in anecdotal evidence, but we hoped to find some more quantifiable proof.

As an example, current law students seem to approach legal analysis in completely different ways from students in the past. They rely much more on locating a resource in electronic form, and skip print sources. Researchers using electronic resources appear to be relying on the reasoning found in cases they locate through Westlaw or Lexis searches rather than doing their own reasoning beforehand. As Barbara Bintliff points out,³ a computer-assisted search of full-text databases requires a query most often based on the facts of the matter at hand.

¹ J.D., M.S.L.S.; Professor of Law and Director of John Joseph Moakley Law Library at Suffolk University Law School.

² J.D., M.L.S.; Legal Reference Librarian at John Joseph Moakley Law Library at Suffolk University Law School.

³ Barbara Bintliff, *From Creativity to Computerese: Thinking Like a Lawyer in the Computer Age*, 88 LAW LIBR. J. 338, 345 (1996).

When research is done in a print digest, the searcher is required to do a certain amount of legal analysis in order to select the most-likely topic in the index.

Thus, the shift from case research using print digests to full-text online databases has brought a shift from pre-analysis of the legal issues to identification of the relevant facts. Then, the researcher has the legal analysis of the located cases to look to for legal analysis of the issues in the case.

There are other, more subtle effects of CALR. As researchers rely on computers and full-text databases for their research, there seems to be a tendency to feel that whatever the computer finds or does not find is more reliable than mere human work.⁴ Many librarians have compared students' faith in computerized research to a mistaken belief that the search systems have achieved artificial intelligence.

Computerized research has also destroyed context, serendipity, and the powerful signposts built into printed resources. The fundamental nature of computerized legal research now is that one pulls a document out of the database, with no hint of the surrounding structure or hierarchy (if any) in which it was originally embedded. For materials such as court decisions, this is not really a problem; they are arranged in reporters without subject order anyway. But with

⁴ See e.g., Daniel P. Dabney, *The Curse of Thamus: An Analysis of Full-Text Legal Document Retrieval*, 78 LAW LIBR. J. 5, 35 (1986). Expert searchers using a database management system and a large but limited database of documents searched the database until they felt certain they had located all documents on a certain topic. Their search results were compared to a manual search of the database's contents. The expert searchers' electronic research located only a small percentage of the relevant documents actually available. *Id.* See also, Scott P. Stolley, *The Corruption of Legal Research*, 46 FOR THE DEFENSE 39 (2004), in which a senior partner in a Texas firm describes his experiences with junior associates who believe that if their online research does not turn up material, it does not exist. Stolley describes the young associates' bewildered astonishment when he finds a case on point in the digest within a few minutes after the associates fail to find relevant sources online. *Id.*

codified materials such as statutes, regulations or even portions of treatises, the searcher loses a great deal when she loses the context. Too often, students have no clue that the title in which a statute or regulation was found might help them decide whether the section found was really the one needed for their research. This was probably true before the great spread of computerized research, but the very location of the book, the title on its spine, and the pages to be passed on the way to the section, acted as signposts that perhaps even the least perceptive eventually learned to note. Now, we need to teach that structure explicitly, and stress its uses to the researcher. To their credit, both Lexis and Westlaw have added tables of contents to their online statutes and regulations. Westlaw also has indexes for the statutes. But students now must be affirmatively taught to use those features and how to use the titles and chapters as signposts to help their research.

This problem of context is exacerbated by the increasing reliance on Natural Language searching to the exclusion of Boolean and such refining tools as “locate” or field searching. Natural language makes it easier for poor searchers to believe they have found all there is, or that there is nothing there. While there may be many times that a researcher need only find one article or case on point to locate the rest of the leading law on a point, they need better skills than this minimum. Too often, the easy, initial success offered by Natural Language searching lets busy students and lawyers stop at this first step and avoid improving their understanding or skills. Perhaps the most dangerous part of the

sea-change washing over legal thinking and research is that the law students and lawyers have no idea that anything is occurring

If each user of information was aware of these steps, if each user understood what was being done for her and could monitor results with a skeptical eye, the danger would not be so great. But the whole point of these systems is to work automatically. The whole point is to create an environment where the searcher does not have to know about those steps. In this environment one accepts the search results as being the best available information. The problems brought out in the string of articles on Boolean searching begun by Professors Blair and Maron's study continues on. Most researchers do not understand how to critically evaluate search results. The emphasis from the vendors of high-end information will be to lessen that critical evaluation, not enhance it.⁵

Bob Berring wrote this in 1997. The advent of further aids to the researcher, such as Lexis' *Search Advisor* and *More Like This* on all Web research simply accelerates the trend.

Legal writing, as well as research and analysis, is being changed by the advent of computers. Word processing technology makes it easier to draft legal documents. Now legal writers may insert new paragraphs and clauses without retyping from the beginning. The results are more and longer pleadings, memoranda and contracts. In addition, immediate and convenient access to legal and non-legal materials online make them more-cited than ever before. The ability of researchers to create keyword searches of the full text has made it possible to locate articles and cases that might not have been found using indexes. The availability on Lexis and Westlaw of the full text of materials previously only

⁵ Robert Berring, *Chaos, Cyberspace and Tradition: Legal Information Transmogrified*, 12 BERKELEY TECH L. J.189, 209-210 (1997).

held at a few large research libraries has made those documents easily accessible

The flip side of online accessibility is that some materials that are becoming more difficult to locate. Cases and articles using odd vocabulary for commonplace terms will not turn up in full text searches. Likewise, materials that are not available on the Internet or in popular databases are less likely to be cited and read.

But rather than curse the technology, vendors and legal educators should be discussing how to teach students to be aware of, and to compensate for, the changes wrought by the new developments. There are definitely advantages to natural language searching, for instance, and we should teach users how to take the best advantage of them.

WHAT CHANGES MUST WE ADJUST FOR?

Analysis before searching

When we prepare to search a computerized database, we do not usually consider the cause of action, the legal theories of the matter in hand. Rather, the electronic researcher identifies the material facts of the case, and creates a query from those terms. When most research took place using digests, there was a process of analysis that took place before opening the indexes. The researcher had to consider what legal rules might apply to the facts, then move to the indexes. There, one found a pre-formed framework, an outline of the law, that guided the researcher's thought process. Now when we search online, we focus on the facts, and hope to find a case "on all fours," and use the reasoning of that

case to determine the relevant legal principles. The link between individual decisions and legal rules has been broken apart.

The old paradigm organizing legal thinking was as artificial as the new one, and one is not inherently superior to the other. The difference is that the former organizing principles played neatly into sloppy teaching of legal research. With the new reliance on CALR, teachers of legal research meet new challenges. Teachers need to focus on helping students strengthen their analysis skills. Students need to understand what is happening inside the mysterious search function, and know the quality of the results still depends on the quality of their analysis.

Rethink Analysis

We should stress the analysis of legal problems more than ever. But there are some new twists that make use of the different abilities available in CALR. In natural language searching, for instance, a succinct statement of the issue is the best query. Full text searching has released legal research from the structure of the West Digest system. We are like the early sailors who learned to navigate by the stars, and began to expand their travels beyond sight of land. We must teach our students (and perhaps, ourselves!) how to navigate without the structure of either the digests or the theory of law that formerly allowed us to diagnose a problem as being either in tort or contract law. Our students should learn better analysis skills and careful use of the features available on Westlaw and Lexis. Then, we need to impress students with the need to evaluate for themselves the

quality of the cases, the relevancy of the documents they retrieve.

A succinct statement of the question at issue, rather than lists of material facts, may be the best beginning to a natural language search. Rather than diagnosing the problem by field of law, we can dip into the case or article databases with natural language queries based on a rough first analysis. Then, having a rough idea of the contours of the law, the researcher should refine the query, either rewriting it or using tools such as Locate, Focus or Field/Segment searching to home in on the needed documents. We have always argued against such an approach, urging students to do background reading before going online. But with new, flat fee contracts available to even small firms, Westlaw and Lexis become viable tools for first sweep searches to ascertain the broad outlines of the law without print sources.

A second strategy for re-working legal analysis skills is to teach students to begin research with secondary sources. This brings back the links between individual cases and legal theory, as treatises and practice manuals provide explanatory text and lists of leading cases. As more and more treatises and other secondary materials are available online, this is a very viable strategy, and more palatable to current students than sending them to the print resources.

Selecting the Right Database

If we rely exclusively on computerized legal research, it becomes more crucial than ever to select the right database for the search. We need to teach our

students how to select the right database for their research. More than ever, we need to stress primary versus secondary sources, jurisdiction, mandatory authority and persuasive authority. We also need to discuss selecting the most cost-effective database. This includes the narrowest coverage, that will certainly include all relevant sources for the question. But, for those first sweep searches mentioned above, we need to alert students that multi-jurisdiction databases are usually not in the flat fee agreements and tend to cost more to search. We must discuss the pricing structures currently applied to various databases, and warn them that these change frequently and from office to office.

Analysis After Searching

As librarians, we have always experienced a guilty pleasure at enjoying the thrill of the chase, only to leave the hapless researcher to plow through the results alone. But, increasingly, students seem to avoid the hard work of reading, digesting and analyzing the results of research. They search online, hit the print button and try to hand in the printed results. We call this the datadump phenomenon, and suspect the “cut and paste” feature of electronic retrieval adds to this, though too many students still print everything rather than download to disk. It is important for those of us in legal education to force our students to learn the complex pleasures of careful reading and analysis.

The researcher must understand the authorities well enough to form theories and apply them to a set of facts for which they do not present an immediately obvious answer. ...sometimes this requires the imaginative connection of authorities that are not obviously

relevant to the present fact situation.⁶

We must teach our students not only the patience of careful reading but also the creativity to which Lynch alludes, which is at the heart of the lawyering art. We need to teach explicitly how to reason by analogy, and how to apply *ratio decidendi* from one set of facts to something only analogous. Students who have focused on finding a factually similar case may have difficulty in making the leap to reasoning by analogy, so it needs to be taught explicitly as a research strategy.

Leveraging the Results

Sometimes, finding one single case on point is adequate to spin out the rest of the research through citations in the document and citators. But, we had better plan to teach the students how to do that. We need to teach our students how to winnow a case or other document for references, and to turn those to best account. We need to make sure they know how to use headnotes, citators and journal footnotes to broaden out their research. Our students should be taught how to expand a single code, statute, rule or regulation citation into a list of relevant related cites and cases applying them.

Lack of Context

Students and other novice searchers do not fully understand either the structure of an area of law or of applicable codes. Searchers in print treatises and code

⁶ Michael J. Lynch, *An Impossible Task But Everybody Has to Do It – Teaching Legal Research in Law Schools*, 89 LAW LIBR. J. 415, 418-419 (1997).

books have visible, nearly unavoidable markers of the hierarchical structure integral to law.⁷ This sense of context is specially critical with codes, where the title or chapter defines the area the statutes or regulations are governing, and implies a structure and relation between the individual sections.

Online researchers are adrift without signals from print volumes, and hypertext links may increase the user's confusion.

One of the most salient features of the compact disk products already penetrating the market is that hypertext links make differences between types of information disappear. This was also true of the online systems, but the CD, inserted in one's own computer, and contained in a single package, heightens the effect. One moves from a case to a statute to a practice book seamlessly. The oldest injunctions about primary and secondary sources will be hard to enforce in a world where all information tools slide easily into one another. The impact of this may be useful or destructive, but it will change the universe of legal information, and how it is used. Only a focused educational program can prepare legal information users to adapt to this change. Law schools have never done a good job of research training. The only major efforts at real training recently have come from WESTLAW and LEXIS, which have spent great sums in providing system training to law students. However, that is not training in critical evaluation. And who will take on the burden of educating the members of the Bar who are already in practice? Who will hold their hand through these changes?⁸

In our Advanced Legal Research classes, students were searching for a CFR regulation on the limits on asbestos in workplace air. Some students found the asbestos limits in the wrong context, the wrong title of the CFR. This happened to students searching through the paper index as well as online, so the problem is not limited to CALR. But the problem is exacerbated with CALR generally

⁷Bintliff, *supra* note 3, at p. 343.

⁸Berring, *supra* 5, at p. 211.

because the searcher dips into this invisible database pie and pulls out the research plums without any idea of how the plums relate to the rest of the pie. There may even be a bigger plum right next to the found one, and the CALR researcher may never find it. Print sources show you physically where in the code a section is, through the location of the volume on the shelf and through paging through the title or chapter to find the statute or regulation.

Another aspect of context is serendipity. Searchers often stumbled on gems sitting on the opposite page they were hunting for. They often discovered by accident the table of contents at the beginning of a title or chapter, and thereby learned the structure of that area of law in the code. Those features are still there in electronic formats, and we should teach our students to look for and use them. The additions of tables, indexes and page-turning tools in Westlaw and Lexis should be applauded, and highlighted in class. We also need to explain the structure of codes and how to use those signposts, such as title or chapter number, to help guarantee they are finding the correct statute or regulation.

Natural Language searching on Lexis, Westlaw and Internet search engines allow searchers to get some kind of results without any prior analysis or background reading. Then, because the students often fail to critically examine and think about the results of their search, the easy success of such a search masks the deficiencies from the searcher. Because Natural Language and Web searching do not rely directly on the relationship of the query terms, the loss of context may be more profound.

Creating Context in CALR

How do we teach students to build their own context? Perhaps we should spend more time on the various sources of primary law. We often find that students need a refresher that resembles Civics 101. Each branch of government produces its own type of law, and we discuss examples of them and how they are applied. We recently began including several discussions of the importance of reading statutes carefully and of understanding their location in the code.

Our students need to learn to use the tools in online products to re-create those signposts that have disappeared. A few CALR products allow the user to browse documents in a structure analogous to the paper versions. For instance, Lexis and Westlaw have links for the table of contents and browsing pages for statutes, regulations and some secondary sources. This is a good strategy for databases including statutes, regulations, encyclopedias or treatises. As an improvement, we would like to see a hyperlink for each statute, for instance, that produces the table of contents for the chapter in which the statute appears, with the name of the title in which the chapter resides. Case law has no real structure into which it fits, but other legal materials, both primary and secondary, do have structure. If the databases could include more easy-to-use signposts for the structure of the codes, it would be a great help to us in teaching our students.

Databases could actually pioneer new structures more useable than anything we have been able to achieve in print. Westlaw, besides including hypertext links to references in the decision, has hypertext links to the digest list of cases with

similar headnotes. Hypertext also now links directly to the Shepard's or KeyCite list of citing cases, eliminating the step of going into a separate database. Similarly, law journal articles could be linked together by using the indexes that are currently online. All these products can save the user a step of going to a different database and searching. As with Internet search engines, *More Like This* buttons take Westlaw and Lexis users straight to lists of documents that broaden the research.

The Flip Side of Context: Hypertext Changes How You Move, Think, Relate

Ethan Katsh, in a series of articles and a monograph, explores the implications of personal computing and cyberspace for the legal profession. In one article, Katsh points out a number of points at which this new technology is changing the legal profession. Networked information systems remove distance and time as barriers. That is, our patrons may now do research from home or the beach, twenty four hours a day, seven days a week. The user's interactive relation with the computer allows the reader to change the text itself.

Books have a beginning and an end and a preferred arrangement designed by the author. If you were using a hypertextual version of the information in this issue or a hypertextual version of electronic information located in different places, your route to this point might have been different and your exit point from here might be different.... Books exist in a discrete space and are designed to be read in a linear manner. There are page numbers, tables of contents and, most importantly, indexes, which do provide some ability to the reader to locate information of interest. Hypertext goes far beyond this, however, removing spatial constraints and allowing the search for information to proceed non-linearly, to be directed more by the reader than the author, and

to meet the needs of the reader more efficiently than print.⁹

This is one of the advantages brought by CALR; the user can get the information packaged to suit. Professor Katsh raises the possibility that we are moaning about the inevitable changes that accompany the evolution of a publishing/distribution format.

Testing the Change

We decided to test the existence and size of the change with empirical research. We would look at a selection of briefs and court decisions from Massachusetts Supreme Judicial Court, from two time periods. We would look at materials produced in a decade before computers entered the practice of law and again in another decade as close as possible to present day, when computer use is nearly universal. Using textual analysis, we wanted to look at changes in briefs and decisions that might indicate some difference due to the new prevalence of computers in legal practice.

We were afraid we would be overwhelmed if we looked at too many variables at once, so we limited the project to looking just at cases of first impression. We would look only at whether the author used reasoning by analogy to address the issue at any point in the brief or decision. Our research was done on materials produced by practicing attorneys and judges in the course of their every-day work, avoiding any effect on the analysis that might be produced by writers'

⁹ Ethan Katsh, *Digital Lawyers: Orienting the Legal Profession to Cyberspace*, 55 U. PITT. L. REV. 1141 at 1151 (1994).

awareness that they were being scrutinized. Our textual analysis of existing briefs filed in actual appeals looked for any change in the frequency with which lawyers use reasoning by analogy in issues of first impression. This investigation is meant to be an initial test of the general hypothesis, focusing on one, easily coded variable, the use of analogy.

The authors performed two terms and connectors searches in Westlaw's Massachusetts cases database:

“first impression” and da(aft 12/31/1954 & bef 01/01/1966)

and *“first impression” & da(aft 12/31/1992 & bef 01/01/2004) & ci(mass)*

From the initial list, we selected all decisions addressing an issue of first impression (a handful of the search results were “false drops” discussing the phrase “first impression” in another context). We excluded two decisions of statutory cases, those in which the issue of first impression was so completely addressed through statutory interpretation, that there was no room for discussion of analogy, either in statute or case law. For all the remaining decisions, we obtained all possible briefs. Some of the briefs were simply unavailable, impounded, incomplete or illegible. Those cases were also excluded, except one in which partial briefs were available and included reasoning by analogy. We created a process by which each brief was read and coded by one investigator or assistant and then given a second reading by another investigator to verify the coding. Results were entered in a spreadsheet format. We performed simple

statistical analysis on the results of the briefs coding.

Not surprisingly, one glaring difference is how many more cases are being brought to appeal nowadays. We also noticed that there is a trend for briefs to become significantly longer in the most recent decade. We hypothesize that this is due to the ease of adding to and modifying existing documents with personal computers and word-processing software. In previous times, changes to documents meant that a secretary had to retype the entire brief. This was a significant investment of time and firm resources, and so briefs were kept shorter for ease of modification. More to the point of our investigation, we did see changes in the frequency of reasoning by analogy between the two time periods.

The most recent sample includes a total of sixty-five useable cases of first impression, while the earlier ten year sample included sixteen useable cases of first impression. As you can see, although there are more cases using reasoning by analogy in the recent sample, it is a lower percentage of the total number of cases of first impression:

1993 - 2003, 31 cases of 65 = 47.69% using analogy

1956 - 1965, 9 cases of 16 = 56.25% using analogy

This research is an initial step, bringing textual analysis to bear on the question of whether computers are changing the practice of law and the very way that lawyers think. We believe that the results do show an important change in legal reasoning in briefs written before computers began to be used in law offices and

those written since computers became ubiquitous in law offices. One can argue over whether the change in use of reasoning by analogy is actually caused by the rise of computerized legal research, or is due to other factors. For instance, in the years between our samples, certain legal scholars called the practice of reasoning by analogy into question.¹⁰ However, reasoning by analogy never lost currency among the practicing bench and bar, being central to legal analysis.¹¹ We believe that the change is largely due to the change in lawyers' and judges' legal analysis caused by reliance on computerized legal research.

IN SUMMATION

If our empirical research does, in fact, show a change in legal analysis among

¹⁰ *E.g.*, Larry Alexander *Bad Beginnings*, 145 U. PA. L. REV. 57, 86 (1996) (concluding that reasoning by analogy does not really exist), Ronald Dworkin, *In Praise of Theory*, 29 ARIZ. ST. L. J. 353, 358 (stating that analogy is worthless without a theoretical construct), RICHARD POSNER, *THE PROBLEMS OF JURISPRUDENCE*, 86-90 (1990) (attacking reasoning by analogy as lacking integrity and questioning its relevance).

¹¹ *See, e.g.*, LLOYD L. WEINREB, *LEGAL REASON: THE USE OF ANALOGY IN LEGAL ARGUMENT* (2005). The author notes, "...the indubitable fact that the use of analogy is at the very center of legal reasoning, so much so that it is regarded as an identifying characteristic not only of legal reasoning itself, but also of legal education. ...I confirmed my belief that the use of analogical argument in law stands up on its own terms.... The effort to displace analogical reasoning by deductive or inductive reasoning responds to a mistaken belief that the rule of law so requires. Analogical reasoning does not undermine the rule of law but rather sustains it." *Id.*, at vii-viii. *See also*, Scott Brewer, *Exemplary Reasoning: Semantics, Pragmatics, and the Rational Force of Legal Argument by Analogy*, 109 HARV. L. REV. 925, 927 (1996) (noting the centrality of reasoning by analogy to legal argument.)

the practicing bench and bar, it has profound implications for legal education at all levels. Law schools have changed very little in the decades since Dean Langdell introduced the case method at Harvard Law School. Formerly, law schools could

get by doing little or no formal training in legal analysis and research. Students and new attorneys would be guided by the structure of the West digest indexing system, which defined the structure of law in the United States in the Twentieth Century. Already, law schools are responding. Most law schools have increased their emphasis on first year research and writing courses, and some have required research courses in the upper levels. We need to recognize the scope of the change, and move to further adjust our legal education accordingly.

We have entered a new paradigm. The changes wrought by CALR go deeper than how we do research or write. The new technology for searching and delivering legal text has changed the very way in which lawyers think. Our thinking was previously both structured and constrained by the artificial universes of leading scholars and then by West Publishing. Our old paradigms have been swept away. Rather than struggle to turn back the tide, let us run our intellectual boats upon it, be lifted and ride upon this sea of change. Law was developed by people who thought hierarchically and in a linear fashion. Now that the text has been freed from the structure of the printed page, perhaps a new structure and relationship will develop, driven by future legal thinkers who grew up with hypertext and CALR.

Analysis, context and structure are changing, but we believe they are more central than ever. Perhaps the new paradigm will erase much of the current structure of legal thinking, but our students will have to create the structure and locate the legal theory on their own. As teachers of legal research, we have a new role in teaching students old skills in new ways, as well as teaching them to take advantage of new capabilities offered by CALR.