The Death of the Digest and the Pitfalls of Electronic Research: What is the Modern Legal Researcher to Do?

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The Death of the Digest and the Pitfalls of Electronic Research: What Is the Modern Legal Researcher to Do?*

Lee F. Peoples**

Professor Peoples reports the results of a study finding that the opinions and performance of modern legal researchers do not support the traditional notion that print digests are the tool of choice for researching legal rules while electronic databases are best suited for finding cases discussing unique factual situations. Tomorrow's lawyers are unaware of some common shortcomings of electronic research and do not possess the strategies to compensate for them. Law librarians must become more involved in electronic database instruction, integrate legal information literacy education into the curriculum, and advocate for improvements to electronic databases to improve the situation.

1 Law librarians have grappled with the shift from a print to electronic legal information universe for several decades. A robust body of literature documents multiple facets of this change. Discussions exceed traditional legal research topics and embrace fascinating epistemological issues involving the future of law itself. Law librarians are often critical of the shortcomings of electronic databases and the abilities of their users. One theory that has emerged is that print digests are the best resource for locating legal rules while computer searches are the best method of finding cases with similar factual situations. This idea has been supported by thoughtful arguments but has never been tested.

2 The recent arrival of record class sizes composed primarily of members of Generation X and the Millennial Generation at law schools and their libraries adds another interesting twist to the situation. These students have their own preferences when it comes to electronic research, and many reject traditional notions. This article reports the results of a study into the research abilities and preferences of the next generation of legal researchers. The study examined whether the traditional notion of finding rules with the print digest and facts with computer searches is valid for modern legal researchers. It also explored whether efforts to integrate elements of the print digest into the electronic environment have been successful.

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Finally, the study assessed what effect a researcher's previous experience with and opinion of a resource had on his or her ability to use it.

**Literature Review**

*Print Digests*

§3 Many authors have commented that print digests are particularly useful for locating legal rules and concepts. Robert Berring has described the digest system as a "universal subject thesaurus" which provides a subject arrangement of every case in the National Reporter System, allowing lawyers to efficiently retrieve cases by subject.1 Barbara Bintliff, in her seminal 1996 article subtitled "Thinking Like a Lawyer in the Computer Age,"2 contends that historically digests were the tool lawyers used to discover legal rules. They provide a "syndetic structure for each area of law, allowing researchers to understand the relationship, context and hierarchy of identified rules."3 Digest users are able to find cases that expand or narrow legal rules, and provide a context for understanding legal rules, develop arguments and predict outcomes, test ideas against opposing cases, trace ideas back through older cases, find recent cases affirming their interpretation of a rule, see and understand complex relationships between words used in cases, and identify novel arguments.4

§4 For all the digest's success in finding legal rules and concepts, many believe it is a resource whose time has come and gone. Digests have been criticized for being too conservative, rigid, and slow to change; for containing classification errors; for possessing the editorial biases of their creators; and for being cumbersome and difficult to use.5 Carol Bast and Ransford Pyle contend that while the digest system may represent the "present paradigm of legal research," a "paradigm shift" is occurring wherein the computer is replacing the print digest as the tool of choice for legal research.6 Edwin C. Surrency concluded his chapter on digests in *A History of American Law Publishing* with a paragraph titled "The Death of the Digest." Surrency eulogized the once revolutionary key number system and predicted it would be replaced by the computer during the twenty-first century.7

§5 These predictions may soon become reality. An informal survey of firm, court, and county law libraries revealed that the majority had cut or were consider-

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3. *Id.* at 343.
4. *Id.* at 342.
ing cutting their subscriptions to print digests.\textsuperscript{8} A more recent survey of public, private, and academic law librarians revealed strong opinions held by some in favor of print digests, called upon law schools to continue teaching the digest structure, but ultimately recognized a trend toward the cancellation of print digests.\textsuperscript{9}

\textbf{Computers}

\textsuperscript{6} Even as users anxiously took to computer-assisted legal research, scholars began examining the shortcomings of computers at subject searching and retrieving legal rules and concepts. An early study by David Blair and M.E. Maron examining the effectiveness of a full-text database of 40,000 documents created for litigation support revealed the limitation of such databases in retrieving documents by subject.\textsuperscript{10} In a piece written shortly after the Blair and Maron study, Daniel P. Dabney noted that the primary limitation of computer-assisted legal research as it existed in 1986 was its ineffectiveness at providing subject access to cases within a database.\textsuperscript{11} In a piece written the same year, Robert Berring commented that questions involving facts are “quite amenable to straightforward computerized searches”\textsuperscript{12} but that computers are not very adept at searching for legal concepts and often find “words but not wisdom.”\textsuperscript{13}

\textsuperscript{7} Barbara Bintliff links the efficiency of computers at retrieving facts and their failure at retrieving concepts and rules to the way information is organized in databases. Databases lack any “discernible framework” or “overriding organization of concepts and rules” beyond the concordance that organizes them. This method of organization facilitates the retrieval of cases discussing unique facts but makes computers “notoriously poor” at retrieving concepts and rules.\textsuperscript{14} Cases discussing “patients biting their dentists” and “smells coming from pig farms” are easily retrieved with computers, but a search for the concept of “burden of proof” can be frustrating because of the many different ways these words are used in cases.\textsuperscript{15} Computer searches can make the research process “lumpy” as they often

\begin{itemize}
\item E-mail from Paul D. Callister, Library Director \& Associate Professor of Law, University of Missouri-Kansas City, Leon E. Bloch Law Library, to law-lib@ucdavis.edu, Law Digests—Are they Used at Firms? Summary of Responses (Apr. 19, 2004) (on file with author), available at http://law.library.ucdavis.edu/LAWLIB/April04/0287.html.
\item Berring, supra note 1, at 48.
\item Id. at 46.
\item Bintliff, supra note 2, at 346.
\item Id. at 345.
\end{itemize}
miss "broader statements of policy and principles that are included as a matter of course in the digests."

§8 F. Allan Hanson continues this idea by drawing the distinction between classification and indexing. A classification "reflects ideas about meaningful relationships among the parts in the body of information being classified." In contrast, an index simply leads the user to the location of a particular topic but conveys nothing about any relationship among topics. For Hanson the key number system serves as both a classification system by "organizing information in judicial opinions in accordance with a conceptual scheme" and as an index by allowing users to access that information. He contends the classification scheme built into print research tools "promotes a view of the law as a hierarchically organized system based on general principles." Keyword searches provide a list of matches in the database but convey nothing about any relationships between the search results and other information in the database. Computers, he contends, are "good at indexing" but fail at classifying information in a meaningful way.

§9 In a 1998 article titled "Technocentrism and the Soul of the Common Lawyer," Molly Warner Lien argues that online results emphasize the factual elements of a case while broad legal concepts are neglected. The speed of searching electronic databases encourages researchers to rely on bits of rapidly retrieved text to support arguments that are often ill conceived and devoid of an "enlightened, broad perspective." For Bast and Pyle, searching for "procedural questions, abstract concepts, and legal rules" in computer databases is difficult because many of the terms representing these ideas frequently appear in legal documents and their relationship with other words is complex. Because computer queries are constructed to look for similar facts, the researcher often neglects "broader issues and legal concepts, and may be oblivious to the general perspective, . . . failing to consider legal concepts or public policy arguments."

The Impact of Computerized Research

§10 The shift from print to electronic resources raises several philosophical questions. Some authors question whether the law has any structure at all in the era of computerized research. Berring posits that computerized searching swept away the digest's "old system of grand structure" and has "nakedly exposed the

16. Id. at 348.
17. F. Allan Hanson, From Key Numbers to Keywords: How Automation Has Transformed the Law, 94 LAW LIBR. J. 562, 574, 2002 LAW LIBR. J. 36, ¶ 30.
18. Id. at 574, ¶ 32.
19. Id.
20. Id. at 574–75, ¶ 33.
22. Id. at 101.
23. Bast & Pyle, supra note 6, at 293, ¶ 32.
24. Id. at 298, ¶ 48.
myth of the common law and the beauty of the seamless web to the general legal world."²⁵ Researchers freed from the shackles of the old system now "search the entire corpus of law on a word by word basis"²⁶ and "order legal doctrine to suit their needs."²⁷ Bast and Pyle contend that computer research returns us to a more "primitive legal regime" when terms with similar characters had equivalent meanings. In this virtual world, "dog is a sacred animal because it is god spelled backward."²⁸ Hanson argues that legal research using computers "promotes a view of the subject matter as a depthless congeries of facts and doctrines rather than the hierarchically organized system" of the print world.²⁹ He contends that the move away from organizational schemes like the print digest raises the question of "whether the law has any intrinsic organization at all."³⁰

§11 Others question whether computerized legal research is changing the nature of law from a system based on known legal principles to one based on facts. Erwin Surrency predicts that judgments in the future will be made on the basis of similar fact patterns instead of known principles.³¹ Bintliff contends that in an era of computerized legal research, judges receive arguments that are "less rule-oriented, less structured, and more dependent on the chance that the fact matching of a computer search will also return the right rules."³² When judges rely on fact-based arguments, their decisions lose predictability and the legal system becomes less stable.³³ Predictions of a shift to a more fact-based system are coming true. A recent article discussed the phenomenon of judges in the United States and Australia deciding cases based in part on the results of Google searches to verify facts.³⁴

**Integrating the Digest into Westlaw**

§12 If the digest system is better at finding legal rules and concepts while computer searches are better at finding facts, why not combine the two into one product? West has made efforts over the years to do just this. Custom Digest, Most Cited Cases, and KeySearch are Westlaw features that attempt to integrate the hundred-plus years of editorial blood, sweat, and tears into the electronic environment.

§13 KeySearch is West's most overt attempt to integrate elements of the print-based digest system into the electronic world of Westlaw. According to West training materials, KeySearch is "powered by" the key number system and will identify key

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26. *Id.* at 26.
27. *Id.* at 27.
29. Hanson, * supra* note 17, at 575, ¶ 33.
30. *Id.* at 584, ¶ 56.
33. *Id.*
numbers and terms relevant to an issue, integrate related key numbers into a single search, and create effective queries for the user. KeySearch has been described as a cross between a search created by humans and a search created by computer algorithms, a “prepackaged free-text search . . . loosely based upon the Key Number system.” Commentators have been critical of KeySearch. One author saw KeySearch as a “shell over the existing key number system” and thought its pre-established categories defeated much of free text searching’s power. He described the introduction of KeySearch as “an example of advancing into the past.” Another article reviewing KeySearch was critical of search results being dependant on selecting the proper prechosen path through the layers of topic categories.

¶14 Criticisms of West’s efforts to integrate the digest into the electronic environment date back to the early days of computer-assisted legal research. John Doyle’s article, “Westlaw and the American Digest Classification Scheme,” pointed out a number of deficiencies with the online version of the digest as it existed in 1992. Many of the problems Doyle identified have been corrected in the years since his article appeared. Improvements include offering the ability to browse digest topics with the Custom Digest, informing users when outdated topics or key numbers have been replaced, and providing a capacity with KeySearch to create searches for users who do not know how to use the system. Some of his critiques remain valid, however, including the conservative pace at which digest topics are changed, the unavailability of the descriptive word index in the online format, and whether the print digest based in a linear mode of thought is adaptable to the computer at all.

The Experience Abroad

¶15 The idea that print digests might be better at finding rules and concepts while electronic resources might be more suited to finding facts has been discussed in other common law jurisdictions. Lawyers in the United Kingdom look to The Digest: Annotated British, Commonwealth and European Cases for a subject-arranged summary of the case law of England, Wales, Scotland, Ireland, Canada, New Zealand, and other commonwealth countries from medieval times to present. The electronic incarnation of The Digest is known as CaseSearch. Peter Clinch noted in Using a Law Library that searching for cases on a particular subject

37. Hanson, supra note 17, at 578, ¶ 43.
38. Id.
40. John Doyle, WESTLAW and the American Digest Classification Scheme, 84 LAW LIBR. J. 229 (1992).
using the Lexis database is "one of the more difficult techniques to master" and went on to suggest that readers try a paper source like The Digest instead.\(^{41}\) Chris Wares, director of library and information services at BPP Professional Education in London, noted that print sources like The Digest were probably best for finding concepts while electronic databases were preferable for finding facts.\(^{42}\)

\(^{16}\) Canadian lawyers use the Canadian Abridgement to access summaries of case law organized by subject according to a Key Classification System which uses a hierarchy of subject levels similar to West's key number digest system.\(^{43}\) The electronic equivalent is known as WestlaweCARSWELL (www.westlawe carswell.com/home). Commentators have noted the differences between print and electronic resources in Canada. Castel and Latchman urge researchers looking for cases that discuss legal rules to begin their search with a print source like the Canadian Abridgement. On the other hand, they note that the Abridgement would be of no use to the researcher looking for all Supreme Court of Canada cases mentioning goals but that a computer search could quickly and easily retrieve these cases.\(^{44}\) MacEllven and McGuire agree that computers are best suited to finding cases with unique fact patterns, stating that cases involving negligent ski instructors might take hours to find in print resources but may be retrieved in seconds with a Boolean search.\(^{45}\) Another group of authors advises legal researchers faced with complex issues to avoid the computer as a first or second step and begin instead with print sources to help define the issues.\(^{46}\)

\textit{The Experience in Other Disciplines}

\(^{17}\) Research in the fields of education and library science confirms that print resources are better at answering more complex questions while electronic resources succeed at answering simple factual questions. A study by Richard Riding and Philip Chambers examining subjects' ability to answer factual, interpretive, comparative, and deductive questions using conventional textbooks and CD-ROM versions of the same text found that those using the electronic version performed considerably better on factual and deductive questions but users of print media performed better at answering comparative questions.\(^{47}\) W. Michael


\(^{42}\) E-mail from Chris Wares, Director of Library and Information Services, BPP Professional Education, to Lee F. Peoples, Adjunct Professor of Law and Associate Director for Faculty, Research, and Instructional Services, Oklahoma City University School of Law Library (Apr. 28, 2004) (copy on file with author).


\(^{44}\) Id. at 114.


Havener’s study examining the ability of reference librarians to retrieve citations and answer ready reference questions using print and electronic sources found that electronic sources were best at retrieving citations but print sources performed better at answering ready reference questions. In another study which compared subjects’ abilities to use print and electronic encyclopedias, Dave L. Edyburn found that a menu-driven electronic encyclopedia was superior to a print encyclopedia at answering factual questions. Gary Marchionini and Peter Liebscher also examined subjects’ abilities to retrieve factual information from print and electronic encyclopedias and found the electronic version had a slight advantage over the print. Andrew Large tested the ability of subjects to find and recall information in multimedia and print encyclopedias and found that multimedia encyclopedias did not perform well with complex topics but worked better with simple topics.

**Hypotheses**

¶18 The study conducted for this article was designed to test the hypothesis that electronic resources are superior to print digests for finding cases with similar fact patterns. Conversely, it also sought to test the hypothesis that print digests are superior to electronic resources for finding legal rules. In addition, the study examined the effectiveness of KeySearch at finding legal rules and cases with similar fact patterns. Finally, it attempted to measure subjects’ opinions of Westlaw terms and connectors searching, KeySearch, and *West’s Federal Practice Digest 4th Series* to determine if one’s opinion of a resource affects performance with it.

**Methodology**

¶19 The subjects of this study were twenty-eight Oklahoma City University School of Law students, twenty-six third-year students and two fourth-year students, enrolled in the Advanced Legal Research U.S. Law course during the fall 2004 semester. To gauge their previous legal research experience and opinions of the resources, students completed a pretest early in the semester before receiving training and completing the study exercises. Students were trained in one class session to use print digests, to perform searches using Boolean terms and connec-

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tors, and to use KeySearch, but they were not told of the hypotheses being tested or about any of the theories surrounding print and electronic resources.\textsuperscript{52} Data on students’ ages was not collected, but from surveying the class most students were either young members of Generation X or older Millennials.\textsuperscript{53}

\para{20} Students’ ability to use the three resources to find legal rules and cases with similar factual situations was measured with an assignment containing two types of objective questions.\textsuperscript{54} The first type presented a basic legal query and asked students to find a case that answered with a legal rule (rule questions). For example, “Can a state prohibit the display of symbols that some citizens find offensive on automobile license plates? Find and provide a citation to a federal district court case from Maryland that answers this question with a legal rule.”\textsuperscript{55} A total of ten rule questions were adapted with permission from Sloan and Schwinn’s \textit{Basic Legal Research Workbook}. The second type of objective question presented a factual situation and asked students to find a case involving a similar factual situation (fact questions). For example, “You leave a briefcase full of rare coins in your hotel’s safe deposit box. The coins are subsequently stolen from the safe deposit box. Find and provide a citation to a federal district court case from Indiana with a similar fact pattern.” Ten fact questions were created by the author.

\para{21} One specific federal district court case from a particular state was identified as a correct answer for each objective question.\textsuperscript{56} Cases were identified from the \textit{Teacher’s Manual} to the \textit{Basic Legal Research Workbook} and by answering each of the questions using all three resources. The universe of cases students would be required to sift through was purposely limited by providing a jurisdictional clue identifying the state where the correct case came from and instructions on how to search state-specific databases.\textsuperscript{57}

\para{22} Each assignment required students to answer a total of six objective questions, three fact questions and three rule questions, using each of the three resources in a specified order. A counterbalanced design varying the order in which students

\textsuperscript{52} For the curriculum of this class session, see Instructional Plan: Print Digests and Electronic Resources, at http://www.okcu.edu/law/lawlib/staff/pdfs/digesttraining.doc (last visited June 16, 2005).


\textsuperscript{54} For a sample assignment, see Using Digests, CALR and KeySearch, at http://www.okcu.edu/law/lawlib/staff/pdfs/assignment.doc (last visited June 16, 2005).

\textsuperscript{55} \textit{Amy E. Sloan & Steven D. Schwinn, Basic Legal Research Workbook} 60 (2002).

\textsuperscript{56} Limiting correct answers to one possibility was used in a study from a related discipline. See Andrew Large et al., \textit{A Comparison of Information Retrieval From Print and CD-ROM Versions of an Encyclopedia by Elementary School Students}, 30 INFO. PROCESSING & MGMT. 499, 502 (1994).

\textsuperscript{57} Providing students with a jurisdictional clue is appropriate because this study examined the ability of subjects to find cases with the resources and not their ability to decipher legal citations. Studies from other disciplines have included clues in search questions. See Havener, \textit{supra} note 48, at 23, where qualifiers of date and document type were included to keep questions unambiguous.
used the resources was employed to avoid order effect.\textsuperscript{58} The assignments contained instructions designed to limit the influence of extraneous factors on the subjects' abilities to answer the questions. The results were examined to ensure that students did not find any questions impossible to answer with any of the resources. After answering the objective questions, students completed a series of subjective questions designed to measure their opinions of the three resources.

\section*{Results}

\subsection*{Objective Questions}

\textsuperscript{\S23} The hypothesis that electronic resources are superior to print digests for finding cases containing similar factual situations was not supported by the study results. Surprisingly, students were slightly more successful at answering fact questions with the print digest than they were using either of the electronic resources (table 1). Students answered 96\% of the fact questions correctly using the print digest compared to 82\% with a terms and connectors search and only 79\% using KeySearch. This result is contrary to the well-established idea that a computer search, rather than a print digest, is the best way to find cases containing specific factual situations.

\textsuperscript{\S24} The hypothesis that print digests are superior to electronic resources for finding legal rules also was not supported by the study results. Students were more successful at answering rule questions using a terms and connectors search than they were using the print digest or KeySearch (table 1). Students answered 82\% of rule questions correctly using a terms and connectors search, 75\% using the print digest, and only 71\% using KeySearch.

\textsuperscript{\S25} When the overall results are examined, it becomes apparent that students were more successful at answering the fact questions than answering the rule questions regardless of the resource used. Students answered 86\% of the fact questions correctly compared with only 76\% of the rule questions. Students had the least amount of success using KeySearch to answer both the fact and rule questions, getting only 75\% of fact and rule questions correct when using it.

\subsection*{Subjective Questions}

\textsuperscript{\S26} Students were asked in the pretest how much previous training they had received with each of the resources examined in this study. Students indicated they received the most training conducting terms and connectors searches (table 2). Students who took advantage of multiple training opportunities missed fewer questions than students who had not received as much additional training (table 3). This was

\begin{footnotesize}
\textsuperscript{58} An order effect occurs when students perform poorly on questions toward the end of the exercise because they become fatigued from answering so many questions. A counterbalanced design overcomes order effect by varying the order of the questions. \textit{Walter R. Borg & Meredith D. Gall}, \textit{Educational Research: An Introduction} 709 (5th ed. 1989). In a study examining subjects' ability to use three resources, varying the order in which subjects used the resources to answer questions was used and no order effect was found. \textit{Jacqueline C. Mancall}, \textit{Examining the Successful Retrieval of Information by Students Using Online Databases}, 16 \textit{Sch. Libr. Media Q.} 256, 257 (1988).
\end{footnotesize}
Table 1

Number of Questions Answered Correctly

<table>
<thead>
<tr>
<th>Resource Used</th>
<th>Fact Questions</th>
<th>Rule Questions</th>
<th>Total Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Digest</td>
<td>.96 (27/28)</td>
<td>.75 (21/28)</td>
<td>.86 (48/56)</td>
</tr>
<tr>
<td>Terms &amp; Connectors</td>
<td>.82 (23/28)</td>
<td>.82 (23/28)</td>
<td>.82 (46/56)</td>
</tr>
<tr>
<td>KeySearch</td>
<td>.79 (22/28)</td>
<td>.71 (20/28)</td>
<td>.75 (42/56)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>.86 (72/84)</td>
<td>.76 (64/84)</td>
<td>.81 (136/168)</td>
</tr>
</tbody>
</table>

Table 2

Training Completed Prior to This Study

<table>
<thead>
<tr>
<th>Resource Used</th>
<th>Never</th>
<th>Once</th>
<th>More than Once</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Digest</td>
<td>.11 (3/28)</td>
<td>.68 (19/28)</td>
<td>.21 (6/28)</td>
</tr>
<tr>
<td>Terms &amp; Connectors</td>
<td>.00 (0/28)</td>
<td>.43 (12/28)</td>
<td>.54 (15/28)</td>
</tr>
<tr>
<td>KeySearch</td>
<td>.21 (6/28)</td>
<td>.68 (19/28)</td>
<td>.11 (3/28)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>.11 (9/84)</td>
<td>.60 (50/84)</td>
<td>.29 (24/84)</td>
</tr>
</tbody>
</table>

Table 3

Advanced Training Decreases Chances of Missing Questions

<table>
<thead>
<tr>
<th>Sessions Attended</th>
<th>Number of Questions Missed</th>
<th>Likelihood of Missing Question*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21</td>
<td>.42 (21/50)</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>.25 (6/24)</td>
</tr>
</tbody>
</table>

* # missed / # trained

determined by comparing the number of questions missed by those who attended one training session with the number of questions missed by those who attended multiple training sessions.

¶27 Students identified the resources that in their opinion were most and least effective at finding cases with similar factual situations and at finding legal rules. The assignment defined an “effective” resource as one that finds relevant results in a reasonable amount of time without great difficulty. Students ranked the resources according to these criteria before completing the training and assignment, and then again immediately after they had completed training and answered the objective questions on their assignments. Students were not yet aware if they had answered the questions correctly when they ranked the resources. Their opinions were based entirely on their experience using the resource.

¶28 Students’ opinions of the resources did not coincide with the traditional notion that print digests are best at finding legal rules and electronic resources are best at searching for unique factual situations. Students were especially fond
of terms and connectors searching and consistently ranked it the most effective method of answering both rule and fact questions before and after training and completing the exercise (figure 1). Opinions of the print digests' effectiveness at answering both types of questions were consistently very low both before and after receiving training and completing the exercises. The majority of students, 69%, said they found the digest cumbersome and unwieldy to use. Students' opinion of KeySearch went from bad to worse after training and completing the exercises. Twenty-nine percent of students rated KeySearch as least efficient at answering both fact and rule questions before training and completing the assignment. This percentage notably increased after students completed the assignment.

¶29 Students who came into this experiment with a positive opinion of a resource's effectiveness performed slightly better using that resource when compared with the entire group of students who answered questions correctly. In determining if opinion had an impact on performance, I first isolated the students who ranked a resource as most effective before completing the exercises (column 2, table 4). I then tabulated the number of questions those students answered correctly using that resource (column 3, table 4) and compared it with the number of questions all students answered correctly using the resource (column 4, table 4).

¶30 After students completed the exercises, I asked for their opinion of the effectiveness of the resources again in hopes of determining if their experiences using the resources had any effect on their opinions of the resources. I first isolated the number of students who missed questions using a resource (column 2, table 5). I then tabulated the number of students who missed questions with a resource and also ranked that resource least effective at answering questions (column 3, table 5). Finally, I compared that figure with the entire group of students who found that resource to be the least effective after completing the exercises (column 4, table 5). Students who missed questions using the print digest or KeySearch were noticeably more likely to have a negative opinion of that resource than the entire group of students. Students missed a comparatively similar number of questions using terms and connectors searches as they did with other resources. However, students who missed questions using a terms and connectors search were very reluctant to give the resource a negative rating.

¶31 Students indicated which resources required the most and least amount of time for them to feel confident and satisfied with the results of their research. Students said it took the longest amount of time for them to feel confident and satisfied when using the print digest and KeySearch, and the least amount of time when conducting a terms and connectors search (table 6). There was no relationship between the amount of time it took students to feel confident and satisfied using a resource and their performance with that resource. Students actually answered the most questions correctly using the print digest despite the

59. This result confirms the criticism expressed by Bintliff, supra note 2, at 343.
long period of time it took them to feel confident and satisfied using the digest. Students were not able to answer as many questions correctly using a terms and connectors search despite how quickly they became confident in using it.

Discussion

The study results are significant for demonstrating that the abilities and opinions of the modern legal researcher do not match up with the traditional notion of searching for rules with the print digest and facts with electronic resources. Students took the digest, a tool designed around and universally proclaimed to be excellent at researching legal rules, and successfully used it to find cases with similar factual situations. This success is evidence of their acumen as fact-based legal researchers and possibly their inclination to think of the law not as a set of established rules and principles but as a series of cases discussing unique factual situations. Students’ ability to find facts with the print digest supports the idea that our approach to legal research and our concept of the law itself may be changing from a system founded on identifiable rules and principles to one based on unique factual situations.
Table 4

Opinion before Training and Ability to Answer Questions Correctly

<table>
<thead>
<tr>
<th>Resource Used</th>
<th>Ranked Most Efficient</th>
<th>Ranked Most Efficient and Answered Correctly</th>
<th>Compared with Overall Number of Correct Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Digest</td>
<td>.14 (8/56)</td>
<td>.88 (7/8)</td>
<td>.86 (48/56)</td>
</tr>
<tr>
<td>Terms &amp; Connectors</td>
<td>.70 (39/56)</td>
<td>.85 (33/39)</td>
<td>.82 (46/56)</td>
</tr>
<tr>
<td>KeySearch</td>
<td>.16 (9/56)</td>
<td>.89 (8/9)</td>
<td>.75 (42/56)</td>
</tr>
</tbody>
</table>

Table 5

Impact on Negative Opinion of Answering Questions Incorrectly

<table>
<thead>
<tr>
<th>Resource</th>
<th>Number of Questions Wrong</th>
<th>Wrong and Had a Negative Opinion</th>
<th>Overall Negative Opinion after Completing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Digest</td>
<td>.14 (8/56)</td>
<td>.88 (7/8)</td>
<td>.48 (27/56)</td>
</tr>
<tr>
<td>Terms &amp; Connectors</td>
<td>.18 (10/56)</td>
<td>.10 (1/10)</td>
<td>.09 (.5/56)</td>
</tr>
<tr>
<td>KeySearch</td>
<td>.25 (14/56)</td>
<td>.93 (13/14)</td>
<td>.43 (24/56)</td>
</tr>
</tbody>
</table>

Table 6

Amount of Time to Feel Confident with a Resource

<table>
<thead>
<tr>
<th>Resource</th>
<th>Took Most Time to Feel Confident Using</th>
<th>Took Least Time to Feel Confident Using</th>
<th>Questions Answered Correctly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Digest</td>
<td>.50 (14/28)</td>
<td>.14 (4/28)</td>
<td>.86 (48/56)</td>
</tr>
<tr>
<td>Terms &amp; Connectors</td>
<td>.00 (0/28)</td>
<td>.68 (19/28)</td>
<td>.82 (46/56)</td>
</tr>
<tr>
<td>KeySearch</td>
<td>.50 (14/28)</td>
<td>.14 (4/28)</td>
<td>.75 (42/56)</td>
</tr>
</tbody>
</table>

¶33 Despite students’ success using the print digest to find facts, they are not likely to adopt this resource as their tool of choice. The vast majority of students ranked the print digest at or near the bottom for effectiveness, said it took them a long time to feel confident and satisfied when using it, and found the digest cumbersome and unwieldy to use. When I discussed the history of digests, showing students a picture of the Abbott brothers and unveiling a crumbling leather-bound historic *Canadian Abridgement* volume during class, a glazed look appeared in many students’ eyes. These young members of Generation X and older Millennials cut their teeth on personal computers in grade school. By the time

60. Benjamin and Austin Abbott developed the *New York Digest*, the first digest organized around an outline of the law divided into analytical topics. West eventually purchased this system and built its digest system upon it. *Currency*, supra note 7, at 116, 120. The *Canadian Abridgement* is a precursor to the digests that began appearing in America in the late 1800s.
they reach law school these students prefer and expect to conduct legal research for facts, rules, and everything else electronically.\textsuperscript{61} Even when I revealed to the students how successful they were with the print digest, they responded that they still preferred electronic resources over the print digest. Today’s students do not share some law librarians’ devotion to the print digest. For all practical purposes, the print digest is dead to these students before they learn it exists.

\textsection{34} Students’ success at finding rules with terms and connectors searches demonstrates that modern legal researchers well trained in Boolean searching can discover rules without the structure of the print digest system. This study did not examine what effect the use of a particular resource has on a researcher’s understanding of the law or the quality of their legal reasoning. Most of the students who participated in this study will be practicing lawyers by the time this article is published and will be researching and arguing for changes in the law. If electronic searching deprives them of a full understanding of legal rules and principles, promotes ill-conceived arguments, and impedes their ability to think like lawyers, then something must be done. Librarians are poised to stem the negative effects of electronic research. We must inform researchers of the shortcomings of electronic research and make them aware of sources and strategies for overcoming them.

\textsection{35} KeySearch was not shown to be a tool that successfully integrated the structure of the print digest into the electronic environment. Students had poor opinions of KeySearch and answered the least amount of questions correctly using it. They ranked it at or near the bottom for effectiveness and found it required more time to feel confident and comfortable using than other resources. Some students indicated they spent more than one hour trying to answer questions with KeySearch that were answered in minutes with other resources.

\textsection{36} Students’ comments about KeySearch were in line with some common critiques of the resource. Students felt that KeySearch’s hierarchy of topics and sub-topics trapped them into a line of thinking and unnecessarily narrowed their search options. This critique is similar to the concern expressed by Wolf and Wishart that KeySearch results are too dependant on selecting the proper prechosen path through the topical layers.\textsuperscript{62} Students also expressed concern that KeySearch was not adding anything of value to their searches, and they would have preferred to run them as terms and connectors searches. This is similar to the critique voiced by Hanson that KeySearch’s reliance on the existing digest hierarchy is an example of “advancing into the past.”\textsuperscript{63}

\textsection{37} Librarians must advocate for improvements in KeySearch and other similar technologies that address the weaknesses of electronic databases and

\textsuperscript{61} The majority of students (54\%) said they occasionally use print legal research resources compared with only 32\% who said they use print resources often. Most students (52\%) said they use electronic legal research resources and the Internet to conduct legal research very often.

\textsuperscript{62} Wolf & Wishart, supra note 39, at 29.

\textsuperscript{63} Hanson, supra note 17, at 578, ¶ 43.
incorporate positive aspects of print research into the electronic environment. There have been several successes in this area recently. Westlaw’s Results Plus feature automatically searches for and displays secondary sources relevant to a query in an electronic database. This helps researchers discover interpretive sources they otherwise would not have found. Electronic tables of contents facilitate document browsing and are particularly useful when trying to get a grasp on lengthy statutes or treatises in the online environment. The ability to view a document as it appears in print, which is available with HeinOnline and, for some cases, on Westlaw through its West Reporter Image (PDF) option, has been warmly accepted. More improvements in electronic databases are needed to counteract their shortcomings.

¶38 Analyzing responses to the opinion questions revealed that students fell into two common pitfalls when using electronic resources. The majority of students thought terms and connectors searching was the most effective method of researching facts and rules both before and after completing the exercise. Their support for this search method was unflappable. Even students who missed questions using a terms and connectors search refused to give it a lower effectiveness rating. However, students who missed questions using the print digest and KeySearch were not as kind and punished the resources with lower ratings. Students said they were unwilling to give terms and connectors a lower effectiveness rating because it was so much easier to use than KeySearch or the print digest. This finding is in line with previous studies where researchers exhibited a high level of confidence in the results of an electronic resource simply because it was easy to use.64

¶39 Students overwhelmingly stated that it took them the least amount of time to feel satisfied and confident in their research when using terms and connectors, and the most amount of time when using the print digest or KeySearch. This quickly developed confidence in using terms and connectors searching did not translate into exceptional performance as students answered the most questions correctly using the digest and not terms and connectors searches. This result is in line with previous studies that have found researchers using electronic resources often stop researching too soon.65 Students’ rapid confidence in the results of their terms and connectors searches may also be attributable to their extensive training with the resource and high opinion of its effectiveness.66

¶40 When I informed students that their answers confirmed some common shortcomings of electronic research, they were anxious to learn more about these

64. Bintliff, supra note 2, at 349 (citing F.W. Lancaster et al., Searching Databases on CD-ROM: Comparison of the Results of End-User Searching with Results from Two Modes of Searching by Skilled Intermediaries, 33 RQ 370 (1994)).
65. Id.
66. The majority of students (54%) indicated they had received the most training conducting terms and connectors searches, and most students (79%) thought terms and connectors searching was more efficient than other resources evaluated in this study. See supra tables 2, 4.
phenomena and any solutions to them. Many students admitted it was the first time they had heard anything negative about electronic searching and its effects on their ability to craft thoughtful arguments. If tomorrow’s lawyers are going to conduct all legal research electronically, then librarians must educate them about the common pitfalls of electronic databases and equip them with strategies to become expert electronic researchers.

¶41 Librarians can improve students’ abilities to conduct research in electronic databases through involvement in the training process. A recent survey of the practices of sixty-one law schools revealed that the majority of first-year LexisNexis and Westlaw training is conducted by vendors rather than librarians.\textsuperscript{57} Leaving training entirely up to database vendors invites educational concerns to be superseded by marketing strategies. Vendors selling products are often unwilling to point out the shortcomings or limitations of their databases and of electronic research in general. Vendor training sessions usually consist of a series of carefully scripted exercises where everyone finds the right answer with relative ease. Anyone who frequently conducts legal research knows that answers are not always that easy to come by. When research is not as easy as it seemed in the training session, students may be tempted to quit early with the belief that their results are comprehensive.

¶42 The ALL-SIS Relations with Online Vendors Committee’s “Qualities of an Ideal CALR Vendor-Library Relationship”\textsuperscript{68} provides important guidance in this area. The document recognizes the tension between marketing and educational goals present when students are trained by database vendors. Librarians and vendors are called upon to acknowledge that education should be the “primary focus of training in a law school setting.”\textsuperscript{69} The document leaves the responsibility of comparing databases while presenting balanced views of all products without promoting one over another to librarians. Students’ research abilities will suffer if librarians do not fulfill this responsibility through involvement in training sessions.

¶43 Law librarians, as the learned intermediaries of legal information, enjoy a unique position of trust and confidence with patrons. Our only allegiance is to our patrons, not to the products they use. Librarians must teach students to be aware of their own limitations in the spirit of the classical Greek ideal of \textit{gnothi se auton}, know thyself. We must make students aware of the tendency of researchers using electronic databases to be overconfident in their results and, hence, to stop searching too soon. We should train them about the common shortcomings


\textsuperscript{68} Acad. Law Libraries Special Interest Section, Am. Ass’n of Law Libraries, \textit{Qualities of an Ideal CALR Vendor-Library Relationship, with Benchmark Signs of Success}, 95 LAW LIBR. J. 572 (2003).

\textsuperscript{69} \textit{Id.} at 575.
of electronic databases and provide them with strategies to overcome them. We must inform students that electronic legal research might miss broader issues and policy arguments, leaving them ignorant of the structure of legal rules. Students should be shown how to compensate by consulting secondary sources like treatises, hornbooks, and nutshells that excel in providing a big-picture overview of an area of law. When librarians are not involved in the training process, it is easy to see why students may be unaware of their own limitations and the limitations of electronic databases.

§44 Librarians can improve students’ abilities to conduct research in the electronic environment by developing the information literacy skills of our students. Information literacy is defined as “a set of abilities requiring individuals to ‘recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.’” An information literate individual possesses skills useful in surmounting the shortcomings of electronic databases, including an understanding of how databases are organized, the ability to select the most appropriate source and design an effective research plan, knowledge of Boolean and other commands appropriate for the database, and the ability to assess the quality of the search results.

§45 Today’s law students should have acquired some information literacy skills before they began law school. Efforts have been underway to integrate information literacy instruction into the curriculum at the primary, secondary, and higher education levels since the 1980s. Unfortunately, a recent survey revealed that many of today’s law students are information illiterate. The survey examined the information literacy abilities of incoming first-year law students at three law schools. The results revealed that many students thought they were adequate or good researchers but lacked a basic understanding of how to conduct research and “struggled with questions testing their knowledge of Boolean operators, citation indexes and library catalogs.”

§46 I asked the subjects of this study some of the questions posed in the recent study of first-year students to determine if their information literacy skills were any better. Students had confidence in their abilities as researchers: 41% rated themselves as good researchers, 26% thought they were very good, and 12% placed themselves in the category of excellent. Despite their positive self-images, 57% were confused about the contents of the library catalog and only 61% correctly answered that OR is a Boolean operator used to expand a search. What is particularly disappointing about these results is that the subjects of my study were


third- and fourth-year law students and not entering first-years as surveyed in the previous study. We can no longer assume that students begin their legal education with a basic foundation of how to conduct research. The legal information community has largely ignored information literacy for too long. More than thirty academic disciplines have articulated information literacy competencies and learning outcomes specific to their fields of study, but no standards have emerged for legal research. Law librarians should formulate a set of core standards and competencies for legal information literacy and integrate them into basic and advanced legal research instruction.

Conclusion

Modern legal researchers do not search for rules with the print digest and facts with computers. Instead, they prefer to search for everything using an electronic resource that is fast and easy to use. Unfortunately, tomorrow’s lawyers are unaware of some common shortcomings of electronic research and do not possess the strategies to compensate for them. The blame for this situation does not lie with the vendors who trained them, the college librarians who failed to teach them information literacy skills, or the databases that are not easy enough to use. The blame must be placed squarely upon law librarians who have not recognized the needs of their patrons and who must do more to make them excellent legal researchers in the electronic environment.
