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# THE CHALLENGES OF USING ELECTRONIC RESOURCES TO SOLVE ILL-STRUCTURED LEGAL PROBLEMS

Stefan Krieger\*

To understand the impact of technology on legal research, we first need to consider the nature of the legal reasoning process. Unlike issues in some other domains, legal problems are often “ill-structured”:

(1) the place to begin to define the problem is usually not clear; (2) there often are many contingencies to take into account; (3) how to weigh and assess the various interdependent variables is uncertain; (4) one has to continuously re-frame and reconsider what one is doing in light of new information and shifting calculations; and (5) the goals to be sought are frequently subject to debate and refinement and are not usually susceptible to clear measurement.<sup>1</sup>

By their very nature, many legal problems arise under uncertain conditions in regard, for example, to the client’s interests, the other party’s intentions, the controlling legal doctrine, and the procedural constraints of the legal system. In an initial interview of a client about a landlord/tenant problem, for example, lawyers frequently encounter problems with different legal doctrines: tort, contract, property; evidentiary issues; diverse procedural obstacles; the relationship between the parties; and tricky ethical quandaries. Attorneys must consider all these issues at the same time and often cannot easily compartmentalize them. In such situations, “[t]here is not likely to be a set technical approach to follow to reach a solution nor necessarily a single determinant answer to resolve the matter.”<sup>2</sup>

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1. Mark Neal Aaronson, *We Ask You to Consider: Learning About Practical Judgment in Lawyering*, 4 CLINICAL L. REV. 247, 257 (1998).

2. *Id.*

While some law teachers may instruct their students that lawyers engage in basic logical reasoning, in practice, they do not. When a lawyer, for example, uses syllogistic reasoning, she understands that the meaning of the general legal proposition—even when set forth in a statute—is not always clear. Because legal problems arise in particular factual contexts, reasoning about the meaning of a legal rule often requires more than the mechanical application of the general words in the text.<sup>3</sup> Likewise, when an attorney reasons by analogy, she considers the precise nature of the particular legal problem and context and does not simply compare the surface details of her client's case with a precedent.<sup>4</sup>

Any effective legal research process, then, must take into account the ill-structured nature of many—if not most—legal problems. A recent empirical study conducted by Katrina Fischer Kuh and me, suggests that the chosen research medium may significantly impact how legal researchers approach ill-structured problems.<sup>5</sup> This study presented subjects (second- and third- year law students) with a hypothetical problem and asked them to research and answer the problem. The problem was ill-structured to the extent that it presented a legal question that was not answerable with reference to a single, well-established case or line of cases. We compared the research process used by ten subjects who conducted their legal research at a computer terminal with ten subjects who conducted their research in a law library and were permitted to access only print resources.

Several of the findings in this study suggest that users of electronic legal research, in comparison with their counterparts using print resources, may fail to fully take into account the ill-structured nature of legal problems. We found, for example, that

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3. As Justice Oliver Wendell Holmes stated in his dissenting opinion in *Lochner v. New York*, 198 U.S. 45, 76 (1905), “General propositions do not decide concrete cases. The decision will depend on a judgment or intuition more subtle than any articulate major premise.”

4. As Judge Cardozo wrote in applying prior cases concerning the sale of inherently dangerous articles, such as poisons and explosives, to the purchase of a negligently-manufactured automobile, “Precedents drawn from the days of travel by stage coach do not fit the conditions of travel to-day. The principle that the danger must be imminent does not change, but the things subject to the principle do change. They are whatever the needs of life in a developing civilization require them to be.” *MacPherson v. Buick Motor Co.*, 111 N.E. 1050, 1053 (N.Y. 1916).

5. Stefan H. Krieger & Katrina Fischer Kuh, *Accessing Law: An Empirical Study Exploring the Influence of Legal Research Medium*, 16 VAND. J. ENT. & TECH. L. 757 (2014).

print subjects were more likely to rely on secondary resources in their research, and electronic subjects accessed more case law. Secondary resources constituted 88% of the sources accessed by print subjects and only 22% of the sources accessed by electronic subjects. By their nature, most secondary sources provide an overall review of doctrinal issues—identifying differing approaches to issues, describing different factual contexts in which these issues arise, and, in some situations, discussing the evolving nature of doctrines. In this way, these sources suggest that there may not be one technical answer to a problem or that the problem may be more complex than first meets the eye. The reading of one or two cases usually will not provide the researcher with this broader context. Our findings suggest, therefore, that users of print resources are more prone to be exposed to this context than users of electronic resources.

Similarly, we found that print subjects were more likely to frame their searches using legal concepts, and electronic subjects were more likely to frame their searches using facts. Print subjects employed legal-concept frames for 62% of their searches; electronic subjects used such frames for only 22% of their searches. “High-level perception involves relationships and abstract ideas and concepts. . . . This type of insight allows the researcher to think in the abstract, recognizing patterns in the facts, issues, and primary sources and regrouping them to recognize new patterns.”<sup>6</sup> By framing their searches in terms of concepts, print subjects were more likely than electronic subjects to relate the case problem to overall patterns in other cases and to consider the ill-structured nature of their client’s problem. In contrast, the electronic subjects, by framing searches simply around “facts” were more likely to simply compare the surface details of the client’s case with those of other cases. They ignored the deep meaning of those cases.

Finally, our study found that print subjects were more likely to browse through sources than their electronic counterparts. We defined browsing as instances when the subject surveyed or scanned a table of contents, index, or similar compilation to identify topics warranting further research. Again, this finding suggests that print resources provide a platform that encourages the

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6. Carol M. Bast & Ransford C. Pyle, *Legal Research in the Computer Age: A Paradigm Shift*, 93 LAW LIB. J. 285, 296 (2001).

user to look beyond one simple, technical solution to a problem. As one print subject commented during the study, “[A] lot of what I’m doing right now is as I’m flipping through. I’m thinking to myself, gosh, when you get something that you want it’s so helpful because you see how many areas there are as opposed to on the computer, just the computer simply seems vastly simpler.”

Recent research on human-computer interaction demonstrates that while humans attempt to develop methods for computers to assist us in solving problems, computers themselves train us on methods for solving problems.<sup>7</sup> Our study suggests that the use of electronic research for solving legal problems has a tendency to allow researchers to ignore the ill-structured nature of legal problems and to search for one, technical solution to a problem. Our electronic subjects simply sought out the “case on point.” Our print subjects were more likely to think conceptually and to consider the relationship of the problem case to patterns in other cases and overall doctrine.<sup>8</sup> Our challenge as teachers is to develop methods for training our students to overcome the influences of electronic platforms and to approach legal issues—even on computers—as ill-structured problems.

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7. See, e.g., Vimla L. Patel, et al., *Impact of a Computer-Based Patient Record System on Data Collection, Knowledge Organization, and Reasoning*, 7 AM. MED. INFORMATICS ASS’N 569 (2000) (describing study that found that exposure to computer-based patient records was associated with changes in physicians’ information gathering and reasoning strategies).

8. In our study, we did not attempt to assess whether the conclusions offered by the subjects were “correct.” We chose an ill-structured problem that presented a somewhat novel question. There were many ways to approach the problem and attempting to identify and code “correct” or “incorrect” answers would have required a level of judgment not readily amendable to analysis. We did, however, identify the legal concepts referenced in the subjects’ conclusions but found that the difference between the type of concepts referenced by the two groups were not as marked as the differences observed for other parameters. We did observe, though, that electronic subjects seemed to spend much more time researching tort theories than print subjects and that print subjects seemed to focus more on real property concepts. This finding suggests that the research medium may have influenced not only how subjects researched the problem but also the legal concepts the subjects deployed to conceptualize their research and legal questions presented in the problem.