REFLECTIONS OF A RECOVERING LAWYER: HOW BECOMING A COGNITIVE PSYCHOLOGIST—AND (IN PARTICULAR) STUDYING ANALOGICAL AND CAUSAL REASONING—CHANGED MY VIEWS ABOUT THE FIELD OF PSYCHOLOGY AND LAW

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INTRODUCTION: "PSYCHOLOGY AND LAW"—AND I

For reasons that will become clear, I need to start this Article with a brief academic autobiography. After college, I attended law school, received a J.D., and in the mid-1980's worked for a big New York City firm and then a legal publisher. I also did short stints for the Environmental Protection Agency, the U. S. Attorney's Office, and Legal Services. Next, I went to graduate school in cognitivepsychology. When I arrived, many faculty members tried to get me involved in law-related research. But I had hated being a lawyer so much that I would just cross my fingers in the vampire-away sign and get on with the research I cared about—how people reason. It took me twice as long to get my Ph.D. as it did to get my J.D., and now I have been a psychology professor for more than twice as long as I had worked as a lawyer. Recently, as a (relatively happy) psychology professor, I have allowed my students, both undergraduate and graduate, to push, persuade, and cajole me into teaching courses and doing research on law-related issues.

Thus, for the last four or five years, I have been playing on the fringes of the field that, where I live now, is called "Psychology and Law." (This might not be quite the same thing as the field that lawyers call "Law and Psychology.") I have taught two different courses with the phrase "Psychology and Law" in their titles; I have attended American Psychology-Law Society conferences; and, at those conferences, and many others, I have heard dozens of talks on "Psychology and Law." And I worry. Why isn't the richness of what I have learned as a cognitive (and sometimes social) psychologist being reflected in

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the research choices of psychology and law devotees or in the practices of the legal profession?

People who comment on the field of psychology and law vary between optimistic and pessimistic about what the field has accomplished and where it is going. In 1993, Craig Haney reviewed the effects of psychology and law research on the legal change during the previous decade. On one hand he points to some triumphs: psychology had influenced the legal system with regards to eyewitness testimony, testimony from hypnotized witnesses, predictions of dangerousness, the treatment of children, and some other examples.[1] On the other hand he notes that he would

> be remiss in my discussion of psychology's impact on appellate court decisions if I did not note that, with the exception of a very few issues, the discipline of psychology has been cited approvingly by members of the Supreme Court more often in dissent than in majority opinions, when it has been cited at all.[2]

Among other criticisms he has of the psychology and law endeavor as practiced by empirical psychologists are that we focus too much on procedures and processes within the legal system rather than outcomes, and that we are stuck addressing small, rather than large, questions because we are methodologically conservative.[3]

The end of the millennium prompted some other authors to review the history of the field.[4] Ogloff notes some of the advances made by the field but then turns to a more critical perspective. He identifies twelve issues that need to be addressed if the field is to continue to grow: among his concerns are the narrowness of the range of topics addressed in psychology and law and the atheoretical nature of much psychology and law research.[5] He and others have noted the predominance of work on eyewitness testimony, jury decision-making, and criminal law.[6]

1. Craig Haney, *Psychology and Legal Change: The Impact of a Decade*, 17 L. & HUM. BEHAV. 371, 372–74 (1993).

2. *Id.* at 376.

3. *Id.* at 381.

4. James R. P. Ogloff, *Two Steps Forward and One Step Backward: The Law and Psychology Movement(s) in the 20th Century*, 24 L. & HUM. BEHAV. 457, 457 (2000). This paper was presented as the 1999 Presidential Address to the American Psychology-Law Society. Additionally, see generally Norman J. Finkel et al., *Everyday Life and Legal Values: A Concept Paper*, 25 L. & HUM. BEHAV. 109 (2001); Craig Haney, *Making Law Modern: Toward a Contextual Model of Justice*, 8 PSYCHOL., PUB. POL'Y, & L. 3 (2002).

5. Ogloff, *supra* note 4, at 472, 474.

6. *Id.* at 460–61.

I have my own hypothesis about why the range is narrow—and why, in particular, many of the topics have to do with trials. My hypothesis has to do with where psychologists get their ideas for psychology and law research—television and movies. We see depictions of trials and we *just can't stand it.* How could a legal system possibly assume that people reason that way? I don't want to derogate other people's research so I will report that at least three of my graduate students have proposed research based on ideas from television shows or movies ("The Practice," "Law and Order," and "A Time to Kill").[7] And yes, I let them go ahead with the research because the students are asking interesting theoretical questions about important reasoning processes; jury decision-making is merely the application.

I also have my own hypothesis about why the field tends to be atheoretical—that is, because it is easier to be atheoretical than theoretical, and because, for now, people can still get away with it. One thing that people do in psychology and law research is take a well-researched phenomenon from cognitive psychology—like the primacy effect or the hindsight bias or the predictions of support theory—and see whether it occurs in judicial settings or to the people involved in judicial proceedings (jurors, lawyers, judges). There is no new theory, just the question: does it happen here? Of course, to be fair, sometimes the answer is important. But without theory we don't know how far to generalize: Just these kinds of cases? Just judges with this training? Another thing that people study in psychology and law research is "what ifs." What if we changed some procedure? Again, to be fair, the answer might be important; but again, without theory, we don't know why it works and how far to generalize.

What I am going to argue is this: Rather than getting ideas by watching television shows and seeing how psychology might be relevant to law, if cognitive and social psychologists just sat back and looked at their own everyday basic research, they would see that it could be easily applied to the legal system. To illustrate, I describe some areas of cognitive and social psychology research that I, my colleagues, and my students, have been involved in during the past dozen years and show how they can be applied to the law. This Article includes in depth discussions of analogical and causal reasoning research, and briefer references to other research areas including

7. Note that David E. Kelley, head writer for *The Practice*, and John Grisham, author of *A Time to Kill*, have law degrees.

metacognition, memory inhibition, affective forecasting, and stereotyping.[8]

I. ANALOGICAL REASONING

When I first got to graduate school, I started doing research on analogical reasoning. When I tell people that, their eyes glaze over. People remember being tortured by the "analogy" section on the SATs and GREs and, yes, even the LSATs.

Excruciating : painful :: Joyous : ???

Analogies of this type constitute parts of those tests and both verbal and visual analogies are a big component of most IQ tests. Cognitive psychologists know a lot about how analogy works—at least in the laboratory. Researchers have used the four-term verbal problems illustrated above as experimental stimuli, although, asdescribed below, we have also used more complicated real-world type materials.

It turns out, of course, that law school is largely about analogy; law schools just fail to tell students that explicitly. And the reason law school is largely about analogy is because the common law—and the principle of precedent—is totally about analogy. According to Sunstein, "reasoning by analogy is the most familiar form of legal reasoning."[9]

Below, I first introduce some analogy "basics." Then, I discuss two ways in which analogy research in psychology can be applied to the legal system broadly construed: in the teaching and training of law students and in understanding what drives the use of precedent in judicial decision-making and legal scholarship.

A. Analogy Basics

In analogical reasoning—or what I will refer to as "analogical transfer"—people take a situation that is well understood (source) and use it to help explicate a situation that is less well understood

8. I want to make it clear that I am *not* approaching this from the "heuristics and biases" perspective; that is, I am not going to argue that people are bad reasoners and that the law should take that into account. Plenty of other people have made that point. Rather, most of what I am going to describe are domains in which people are actually pretty good reasoners (*e.g.*, analogical and causal reasoning), and note where the law might want to take that into account.

9. Cass R. Sunstein, *On Analogical Reasoning*, 106 HARV. L. REV. 741, 741 (1993).

(target).[10] Goals of analogical reasoning may include: to make sense of the new target situation, to explain it, to figure out what steps to take next, or to persuade others of a particular interpretation.

1. Types of Similarity in Analogy Use

Two important distinctions we make in psychology are those: (a) between surface (or "superficial") and relational (or "structural") features in the analogs,[11] and (b) between the processes of retrieval and mapping.[12]

The difference between relational and surface features is wonderfully illustrated by some experimental stimuli developed by Arthur B. Markman and Dedre Gentner.[13] Their experiment used pictures; to save space I provide descriptions.

> Top Picture: A tow truck towing a car to the left along a road.
>
> Bottom Picture: A (very similar-looking) car pulling a motorboat to the right along a road.

Subjects were asked to look at both pictures and then were asked to state which object from the top picture "matched" the car from the bottom picture.[14] There are two very plausible answers: (a) the car—because it is a nearly identical thing, and (b) the tow truck—because it is playing the same role. Matching the car to the car relies on surface features—they look similar, they carry passengers on the road, etc. Matching the car to the tow truck relies on relational features—they are each pulling something else that cannot move over the road on its own.

Note that the distinction between types of features is essential in the use of precedent. A good precedent is not one in which the parties themselves (or property in question) are similar but rather one in which similar (legal) relations hold between the relevant parties or

10. Holyoak and colleagues refer to the already-understood analog as the "source analog"; Gentner and colleagues refer to it as the "base analog."

11. Dedre Gentner, *Structure-Mapping: A Theoretical Framework for Analogy*, 7 COGNITIVE SCI. 155, 159–62 (1983); Keith J. Holyoak & Paul Thagard, *Analogical Mapping by Constraint Satisfaction*, 13 COGNITIVE SCI. 295, 295–96 (1989).

12. Gentner, *supra* note 11, at 164–66; Holyoak & Thagard, *supra* note 11, at 296–97.

13. Arthur B. Markman & Dedre Gentner, *Structural Alignment During Similarity Comparisons*, 25 COGNITIVE PSYCHOL. 431, 433–35 (1993).

14. *Id.* at 435–39.

property. Developing expertise in law means seeing through the surface similarities and understanding which relational similarities matter.[15]

2. Steps in Analogical Transfer.

Several steps are involved in analogical transfer; here I refer to retrieval, mapping, and extension.[16] To illustrate, I use examples from an article in which some experimental materials were based on the 1991 Persian Gulf War.[17]

When Iraq invaded Kuwait in August 1990, the United States was quite uncertain about what, if any, action to take. The information was mixed: Kuwait was not a democracy but had oil we needed; the United States had supported Saddam Hussein in the Iraq-Iran war but now he seemed to be threatening the entire region. As so often happens with conflicts of this type, people looked for historical political analogies to help make sense of the situation.[18]

Thus, the first step in using an analogy is *retrieval*—finding relevant source analogs in memory.[19] What possibilities come to mind? Other wars that were fought in the Middle East, World War II, Vietnam, etc.

The next step in using an analogy is to create a *mapping*—a set of appropriate correspondences between elements of the source and target.[20] In our study, we asked subjects to make sense of the analogy that many people were using—that Saddam Hussein was like Hitler. We said to them: "Regardless of whether or not you think this analogy is appropriate, we would like to know what you think the analogy really means." We then gave them a list of several countries and leaders—Iraq, the United States, Kuwait, Saudi Arabia, and George Bush—and asked them to write down the "most natural match in the

15. Note that the key to developing good search tools for finding relevant precedents is also based on finding relevant relational similarities.

16. Scholars have described analogical reasoning as using three, four, or five steps, depending on which part of the process they want to emphasize. Other steps include the initial step of creating a mental representation of the source analog. A final step may involve generalizing two or more analogs to form an abstract schema.

17. Barbara A. Spellman & Keith J. Holyoak, *If Saddam Is Hitler Then Who Is George Bush? Analogical Mapping Between Systems of Social Roles*, 62 J. PERSONALITY & SOC. PSYCHOL. 913, 913 (1992).

18. For excellent examples see YUEN FOONG KHONG, ANALOGIES AT WAR: KOREA, MUNICH, DIEN BIEN PHU, AND THE VIETNAM DECISIONS OF 1965 (1992).

19. Spellman & Holyoak, *supra* note 17, at 914.

20. *Id.*

World War II situation (from the point of view of someone who thinks Hussein is analogous to Hitler). If you think there is no good match, write 'none.'"[21]

Subjects fell into one of two basic patterns. Nearly all mapped Iraq to Germany—based on the relational similarity: if Saddam is analogous to Hitler, and Saddam is the leader of Iraq, and Hitler was the leader of Germany, then Iraq must be analogous to Germany.[22]

However, the mappings for the United States (or "US-'91") and George Bush varied across subjects. Some thought that US-'91 matched the United States of World War II ("US-WW2"). Both surface and relational similarities drive that mapping. Subjects who mapped US-'91 to US-WW2 went on to map George Bush to Franklin Delano Roosevelt ("FDR"). Other subjects thought that US-'91 matched Great Britain. Those subjects went on to map George Bush to Winston Churchill. Regardless of other mappings, subjects matched Kuwait to Austria, Poland, or both.

The third step in analogical transfer is *extension*—using the mapping, and knowledge of the source, to construct inferences about the target.[23] For example, if one believed that Saddam was like Hitler, and one believed that Kuwait was like Austria or Poland, one should believe that Saddam was likely to try to take over other countries, that appeasement would not work, and that military action was necessary.

In our paper described above, entitled "If Saddam is Hitler Then Who is George Bush?" (and which referred to the first President Bush and the first Persian Gulf War), we claimed "it would not be a great exaggeration to say that the United States went to war over an analogy."[24] In fact, it seems that the analogy was so compelling that much of the rest of the world was willing to go to war, too. And many of our research subjects were willing to answer the title question that George H. W. Bush was like Churchill or FDR.

In 2003, the second President Bush failed to get the backing of most of the world for his decision to invade Iraq. He may have failed to make a compelling argument because he failed to have a compelling analogy; Saddam *might* have weapons of mass destruction but that did not make him Hitler. Given the world's reaction, we wanted

21. *Id.* at 916.
22. *Id.*
23. *Id.* at 914.
24. *Id.* at 913.

to ask the question: "When Saddam is *not* Hitler, who is George Bush?" The answer to that probably would have changed after Saddam's capture in December 2003.

Note that retrieval—finding a good source analog in memory—relies heavily on surface similarities between the source and target; mapping—and the evaluation of the quality of an analogy—depends more on the relational similarities between the source and target.[25]

B. Teaching and Training in Analogical Reasoning and Law

Some of what psychologists know about analogy can be applied to law school teaching and some can be applied to understanding the use of precedents. Note that a friend of mine, a cynical ex-law school professor, told me that she believes that law schools do not actually care how well students learn the process of legal reasoning; they just want to be able to differentiate the fast learners from the slow learners for the eventual employers. On the other hand, several years ago when I was on the psychology academic job market, I met with an associate dean of a top-twenty law school. He told me that hebelieved that minority students were dropping out of law school at a higher rate than non-minority students were—even after equating for entering LSATs and grades. His suspicion was that many of them just never caught on to the particular kinds of reasoning processes required in law school.

The next two questions I address are: (a) given all the training they get, or practicing they do, do law students get better at using analogies, and (b) are there ways to train people to get better at using analogies that might be useful in law schools?

1. Do Law Students Get Better at Using Analogies?

Having been a law student, my subjective experience is yes—we did get better at using analogies. However, psychologists do not have any measures that demonstrate that law school improves analogy use.

In the mid-1980s, Lehman, Lempert, and Nisbett studied the effects of various kinds of graduate training on statistical, methodological, conditional, and verbal reasoning; the latter included verbal ana-

25. Dedre Gentner et al., *The Roles of Similarity in Transfer: Separating Retrievability from Inferential Soundness*, 25 COGNITIVE PSYCHOL. 524, 560–61 (1993); Keith J. Holyoak & Kyunghee Koh, *Surface and Structural Similarity in Analogical Transfer*, 15 MEMORY & COGNITION 332, 334 (1987).

logical reasoning (as on the GRE or LSAT).[26] The graduate students were at the University of Michigan studying law, medicine, psychology, and chemistry. Students were tested during their first and third year in their programs. There were a few initial differences in scores; in particular, law students had higher initial verbal reasoning scores than psychology, chemistry, or medical students. But the important data concern how reasoning changed over time. When first-year law students were compared to third-year law students, there was a slight but non-statistically significant improvement in verbal reasoning of about 5 percent.[27] In medicine, psychology, and chemistry the improvement was slightly greater (up to 17 percent) but only the medical students' improvement was statistically significant.[28]

My subjective experience that we got better at using analogies during law school might be more related to the facts that: (a) we read many cases (that were used as source analogs for subsequent hypotheticals), and (b) we learned that we were supposed to be looking for analogies all the time—rather than because we actually improved in using analogies per se.

2. Could We Help Law Students to Become Better at Using Analogies?

Despite what a superficial reading of the psychology literature might suggest, there are ways to improve people's analogical reasoning. The usual problem in the psychology literature is that people do not retrieve relevant analogies from memory. Once they do retrieve something relevant, however, they tend to be good at seeing relational similarities and using the analogy.

a. Typical Laboratory Procedure

In the laboratory, analogical reasoning has often been studied using the following steps:[29]

26. Darrin R. Lehman et al., *The Effects of Graduate Training on Reasoning: Formal Discipline and Thinking About Everyday-Life Events*, 43 AM. PSYCHOLOGIST 431, 434 (1988).

27. *Id.* at 437. The improvement was 5 percent in the cross-sectional design (*i.e.*, comparing a group of first-year students to a group of third-year students) and 4 percent in the longitudinal design (*i.e.*, comparing individual students across years).

28. *Id.*

29. Mary L. Gick & Keith J. Holyoak, *Analogical Problem Solving*, 12 COGNITIVE PSYCHOL. 306, 307–20 (1980); Mary L. Gick & Keith J. Holyoak, *Schema Induction and Analogical Transfer*, 15 COGNITIVE PSYCHOL. 1, 3–4 (1983); Holyoak & Koh, *supra* note 25, at 333.

i. Subjects first learn about a way of solving a hypothetical problem in a story. For example, how might a general deploy his army to attack a well-guarded fortress? Rather than sending all his troops down one road, a better plan might be to disperse the soldiers and attack with small units from all sides at once. This divide-spread-and-converge approach is called the "convergence solution."

ii. Subjects may then be told that they are now in a different experiment—and they will be asked to do some distracting task. Alternatively, they may be asked to leave and come back at some later time.

iii. Then, subjects get a problem to solve that can be solved analogously to the earlier one. For example, subjects may be told about a man who has an inoperable tumor in his stomach. There is a "ray" that can destroy the tumor, but if it is used at sufficient strength to destroy the tumor, it will also destroy the healthy tissue it passes through, and the man will soon die. How can the man be saved?

The typical finding is that only a small percentage of subjects will use the solution to the earlier fortress problem to create a convergence solution to the later tumor problem—use many less-powerful rays simultaneously from different angles.[30]

The main obstacle to using the previous solution is that people do not think of it—they do not retrieve it from memory.[31] However, if people are reminded of the previous solution, for example, by a hint from the experimenter telling them to think back to something that they learned earlier, then most people will retrieve the source analog, see the mapping, and solve the tumor problem.[32]

Note, of course, that this is the task of the law student on an exam or the lawyer searching for a precedent. With a new fact pattern, they are searching for a good analogous case in memory. But they have a jump on the subjects in the experiments—at least they know they *should* be trying to find an analogous case in memory. How can such retrieval be improved?

b. Ways of Increasing or Improving the Use of Analogies

Several experiments have demonstrated ways to increase or improve the use of analogies.

30. Gick & Holyoak, *Analogical Problem Solving*, *supra* note 29, at 318.
31. *Id.* at 348–49.
32. *Id.* at 348.

i. Make Analogs More Superficially Similar to Each Other (So They Will be Retrieved from Memory)

It has been found that people are more likely to successfully retrieve source analogs from memory when those analogs are more superficially similar to the target analog.[33] Referring back to the examples above, when presented with the tumor problem, subjects are less likely to retrieve the superficially dissimilar fortress analog, and more likely to retrieve a source analog involving a scientist who uses a special ray to repair a light bulb.[34]

Of course, in the law, as elsewhere, the source analogs have already been created; they cannot be changed to become more easily found when a relevant target appears. However, although we cannot change the sources per se, we can change people's representation of and memory for sources. That is, rather than have the fortress story in memory as a "story about a general," it could be stored in memory more abstractly, as a story about how a powerful force can be split up and then converged to succeed at a task.

Note that the ability to represent and use information at an abstract level is an ability that develops with expertise. In a well-known study, novice and expert physicists were asked to sort a group of physics problems into categories.[35] Novices mostly sorted by contraption—all the pulley problems together, all the spring problems together, etc.[36] Experts were more likely to sort by the underlying principles—all the conservation of momentum problems together, etc.[37] It seems as if relational features are as obvious (and "superficial") to experts as surface features are to novices.

ii. Have People Compare and Abstract from Multiple Analogs

Another way to improve the use of analogies in the laboratory is to have subjects compare and abstract from multiple analogs. For example, Gick and Holyoak had some subjects read both the fortress story and a story about a firefighter (who used many small streams of

33. Gentner et al., *supra* note 25, at 562; Holyoak & Koh, *supra* note 25, at 338; Richard Catrambone, *The Effects of Surface and Structural Feature Matches on the Access of Story Analogs*, 28 J. EXPERIMENTAL PSYCHOL.: LEARNING, MEMORY, & COGNITION 318, 329–30 (2002).

34. Holyoak & Koh, *supra* note 25, at 335.

35. Michelene T. H. Chi et al., *Categorization and Representation of Physics Problems by Experts and Novices*, 5 COGNITIVE SCI. 121, 123–24 (1981).

36. *Id.* at 125.

37. *Id.* at 125.

water simultaneously from different directions) before trying to solve the tumor problem.[38] Subjects were asked to summarize each source analog individually, then some were asked to compare the two and write how they were similar. Subjects who read two source analogs were more than twice as likely to come up with the convergence solution than the subjects who had read only one source analog. In addition, for subjects who compared the two analogs, the quality of what they wrote as similarities predicted their likelihood of using the convergence solution. That is, those who abstracted the convergence solution from the two source analogs were more likely to use it later than those who did not have a good representation of the underlying relational similarities in the story.[39]

Dedre Gentner and her colleagues have recently used this comparison technique with materials more relevant to law school learning—the case-based learning done in business school negotiation classes. Some of the studies involved different groups of advanced learners (*e.g.*, MBA students who had previous work experience as accountants, managers, or executives); those subjects who compared two cases that were similar in underlying principle were two to three times as likely to use the principle in a new negotiation as those who had analyzed the cases one at a time.[40] The researchers then replicated the study with novices—university undergraduates who had never taken a business course.[41] All students read two negotiation cases. Half of the students read trade-off solutions to both cases; the other half read contingent-contract solutions to both cases. Of each group, half wrote evaluations of each case separately, and half were asked to compare the similarities in problems and solutions between the two cases. Even with novices, such comparisons were effective. Students who had done the comparison were more likely to propose a more sophisticated solution than students who had not done the comparison.[42] (The latter students were more likely to propose an inferior compromise solution.) In particular, students who had done a comparison were more likely to transfer the principle of the cases they

38. Gick & Holyoak, *Schema Induction and Analogical Transfer*, *supra* note 29, at 3, 16, 22.

39. *Id.* at 23–24.

40. Jeffrey Loewenstein et al., *Analogical Encoding Facilitates Knowledge Transfer in Negotiation*, 6 PSYCHONOMIC BULL. & REV. 586, 590 (1999); Leigh Thompson et al., *Avoiding Missed Opportunities in Managerial Life: Analogical Training More Powerful than Individual Case Training*, 82 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 60, 67 (2000).

41. Dedre Gentner et al., *Learning and Transfer: A General Role for Analogical Encoding*, 95 J. EDUC. PSYCHOL. 393, 399 (2003).

42. *Id.* at 398–99.

had compared than the other principle.[43] The researchers also found that the use of the principle transferred to a face-to-face negotiation.[44]

iii. Train People to Abstract Principles from Single Analogs

Another way to improve analogical reasoning is to train people to learn to encode single source analogs at an abstract level.[45] Mandler and Orlich had subjects read the fortress story and then describe the story at one of three different levels of abstraction. In the Detail condition, they were instructed to give a summary of the story details; in the Gist condition, they were asked to summarize the main points of the story by stating the general's goal, dilemma, and solution; in the Abstract condition they were asked to look at the relations in the story between the goal, dilemma, and solution, to abstract a general principle, and to state the principle as a generalizable solution.[46] The subjects were then given three distracter reasoning problems and then the tumor problem. The researchers found that many of the subjects produced summaries that differed from the type requested in the assigned condition.[47] After re-assigning subjects by categorizing their written summaries, they found that very few subjects who provided Detail summaries (3 out of 21)[48] used the convergence solution to solve the tumor problem; more subjects who provided Gist summaries (15 out of 45) used that solution; and all of the subjects who provided an Abstract summary (8 out of 8) found that solution.[49] Note that very few subjects actually succeeded in creating an Abstract-level summary, suggesting that such an encoding is hard to do without either training or practice.[50]

43. *Id.* at 399.

44. *Id.* at 401.

45. Jean M. Mandler & Felice Orlich, *Analogical Transfer: The Roles of Schema Abstraction and Awareness*, 31 BULL. PSYCHONOMIC SOC'Y 485, 485 (1993).

46. *Id.* at 485–86.

47. *Id.* at 486.

48. I am reminded of the student in the movie THE PAPER CHASE (Twentieth Century Fox 1973) who had a perfect memory for the facts of cases but could not abstract their contents.

49. Note that some subjects in the Abstract condition wrote summaries that were "so abstract as to be vacuous." For example: "The general had a goal which he could not achieve directly so he came up with an ingenuous solution." Those subjects were considered to be in a meta-level condition and only 1 of those 15 subjects used the convergence solution. Thus, there is a curvilinear relation between abstraction and usefulness. Mandler & Orlich, *supra* note 45, at 486.

50. *Id.*

C. *Selecting and Using Analogies in Judicial Reasoning and Legal Scholarship: The Role of Unconscious Influences, Goals, and Coherence*

Using analogies is not cut and dried. Most analogies are ambiguous; they can be seen as better or worse depending on factors that can be articulated. However, more than just logic may be at work. Understanding the factors that can motivate the selection or use of precedents can be valuable in creating, understanding, and deconstructing legal arguments.

1. Unconscious Influences

People may show unconscious influences of irrelevant parts (perhaps superficial features) of the source analog on selecting and using analogies. In one of my all-time favorite experiments, Thomas Gilovich had students in a political science class read about a hypothetical political crisis and questioned them about whether they thought the United States should intervene.[51] One reason I like this experiment so much is that it captures what, at least for a while in American history (perhaps the 1980s and 1990s), was the basic analogical war regarding wars: if you were in favor of an intervention you argued "this situation is like World War II" (a winning position for George H. W. Bush); if you were against an intervention you argued "getting involved in this situation is like getting involved in Vietnam." The crisis involved a threatened attack by Country A, a large totalitarian country, against Country B, a small democratic country. Unbeknownst to the subjects, there were two versions of the story, which differed on superficial features only. In the version designed to evoke thoughts of World War II, there is a briefing in Winston Churchill Hall, the United States troops are traveling in troop transports, Country A is massing troops for a "blitzkrieg," and minorities are fleeing Country A in boxcars to neutral Country C.[52] In the version designed to evoke thoughts of the Vietnam War, the briefing is in Dean Rusk Hall, U.S. troops are traveling in helicopters, Country A is massing for a "quickstrike," and minorities are fleeing in small boats through the Gulf of Country C.[53]

51. Thomas Gilovich, *Seeing the Past in the Present: The Effect of Associations to Familiar Events on Judgments and Decisions*, 40 J. PERSONALITY & SOC. PSYCHOL. 797, 802–03 (1981).

52. *Id.* at 804.

53. *Id.*

When subjects were asked to select a political option ranging from appeasement of Country A to direct military intervention, those who read the version with the superficial reminders of World War II made more interventionist recommendations than those who read the version with the superficial reminders of Vietnam. Yet later, when the subjects were asked to rate how similar the story was to both World War II and to Vietnam, the differences in superficial details had no effect.[54] Warns Gilovich: "[T]hough there is certainly a great deal of truth to Santayana's maxim that 'those who do not remember the past are condemned to relive it,' one might also be cautioned that those who do not forget the past can be led to misapply it."[55]

2. Goals

As mentioned previously, it is not always clear which of several analogical mappings is "better." If Saddam was Hitler, was George Bush FDR or Churchill? We know that in the laboratory, a person's goals, interests, or beliefs can influence which of several equally good mappings he or she will choose. Someone who has a reason to want an analogy to look more or less appropriate, can, even unintentionally, make it seem so. This finding should apply to the real-world selection of relevant precedents.

Consider the following experiment.[56] Subjects read a science fiction story in which they learned about two different planets. On Planet 1, there were three countries: Afflu was economically strong and gave economic aid to Barebrute; Barebrute was economically weak but militarily strong and gave military aid to Compak; Compak was militarily weak. Planet 2 had four countries. Grainwell was economically strong and gave economic aid to the economically weak Hungerall; Millpower was militarily strong and gave military aid to the militarily weak Mightless.

Subjects were first asked to make military and/or economic recommendations—for each country subjects could select whether to give it aid, create an alliance, do both, or state if they were unsure. Then subjects were asked to match the countries of Planet 2 to the countries of Planet 1. Which country was like Afflu? Easy, nearly all answered Grainwell. Which was like Compak? Also easy, nearly all

54. *Id.* at 806.

55. *Id.* at 807–08.

56. Barbara A. Spellman & Keith J. Holyoak, *Pragmatics in Analogical Mapping*, 31 COGNITIVE PSYCHOL. 307, 320–22 (1996).

answered Mightless. But which was like Barebrute? That is harder; there are reasons to map it to both Hungerall and Millpower.

In turns out that subjects' mapping depended on the recommendations they were asked to make. Subjects in the control condition, who made both economic and military recommendations, saw Barebrute as slightly more like Millpower than Hungerall.[57] Subjects who made only military recommendations saw Barebrute as much more like the militarily strong Millpower than the economically weak Hungerall.[58] In contrast, subjects who made only economic recommendations saw Barebrute as more like the economically weakHungerall than the militarily strong Millpower.[59]

Thus, processing goals, or previous knowledge or concerns, may drive the mapping within an ambiguous analogy.

3. Coherence

The previous sections suggest that people may be using prior knowledge or goals, either consciously or unconsciously, to select analogies. However, the selection of an analog, or relevant precedent, can be the result not just of a particular goal, but might emerge out of a general pressure for cognitive coherence—that is, the tendency for people to be consistent in their reasoning. Dan Simon and colleagues have studied how people's views of the applicability of a source analog (a precedent) changes in line with other changes in their opinions.[60] In the basic study, subjects (undergraduates) read a legal case called "Caught in the Net," which was loosely based on an actual legal case.[61] The plaintiff, a software company named Quest, was suing Jack Smith, an individual investor in the company, for libel. Smith

57. *Id.* at 323.

58. *Id.* at 322.

59. *Id.*

60. Dan Simon is Associate Professor at the University of Southern California Law School; his main psychologist collaborators are Keith J. Holyoak, University of California at Los Angeles Department of Psychology, and Stephen J. Read, University of Southern California Department of Psychology.

61. The experiment described comes from Keith J. Holyoak & Dan Simon, *Bidirectional Reasoning in Decision Making by Constraint Satisfaction*, 128 J. EXPERIMENTAL PSYCHOL.: GEN. 3, 4–5 (1999); *see also* Dan Simon et al., *The Emergence of Coherence Over the Course of Decision Making*, 27 J. EXPERIMENTAL PSYCHOL.: LEARNING, MEMORY, & COGNITION 1250, 1252 (2001); Dan Simon et al., *Construction of Preferences by Constraint Satisfaction*, 15 PSYCHOL. SCI. (forthcoming May 2004), *available at* http://www.psychologicalscience.org/journals/ps/15_5.cfm. For an overview of that research and its application to the legal system see Dan Simon, *A Third View of the Black Box: Cognitive Coherence in Legal Decision Making*, 71 U. CHI. L. REV. (forthcoming 2004).

had posted a negative message about the company on an electronic bulletin board directed at investors, and shortly thereafter the stock's price dropped drastically and the company went bankrupt.

Before reading the case, subjects were asked to give their opinions about a number of issues that (unbeknownst to them) would be relevant to the case. One issue they were asked about was whether they thought messages posted on electronic bulletin boards should be treated like items published in newspapers or like messages sent over a telephone network. Later, as part of the case, subjects learned that defamatory messages published in a newspaper could give rise to a cause of action for libel whereas those transmitted by telephone could not. After reading the case, subjects were then asked questions probing the same issues as the pre-case questions, including how electronic bulletin board messages should be treated.

Subjects were about equally divided in verdicts. And, before reading the case, subjects found the two analogies (to a newspaper or to a telephone) equally compelling. However, *after* rendering their verdicts, subjects widely diverged. Those who found for Quest believed that the newspaper analogy was much better than the telephone analogy; the opposite was true for those who found for Smith.[62] Thus, belief in the quality of an analogy shifted coherently along with other beliefs that lead them to make a decision.

II. CAUSAL AND COUNTERFACTUAL REASONING

The other topic I have done the most research on is causal reasoning and its close kin, counterfactual reasoning.[63] Obviously, causal-

62. Holyoak & Simon, *supra* note 61, at 9.

63. The following papers are empirical studies about how people reason when they see multiple instances of cause and effect; I call this "causal reasoning in science": Barbara A. Spellman et al., *How Two Causes are Different from One: The Use of (Un)Conditional Information in Simpson's Paradox*, 29 MEMORY & COGNITION 193 (2001); Barbara A. Spellman, *Acting as Intuitive Scientists: Contingency Judgments are Made While Controlling for Alternative Potential Causes*, 7 PSYCHOL. SCI. 337 (1996).

The following papers are empirical studies about how people reason when they see only one instance of cause and effect; I call this "causal reasoning in law": Barbara A. Spellman, *Crediting Causality*, 126 J. EXPERIMENTAL PSYCHOL: GEN. 323 (1997); Barbara A. Spellman, The Relation Between Counterfactual and Causal Reasoning: Availability Mediates Some of the Similarities and Differences in Judgments (2003) (unpublished manuscript, on file with author).

The following papers are mostly reviews of previous literature and argue how causal reasoning in science and law, and counterfactual reasoning, are related: Barbara A. Spellman & David R. Mandel, *Causal Reasoning, Psychology of*, *in* 1 ENCYCLOPEDIA OF COGNITIVE SCIENCE 461–66 (L. Nadel ed., 2003); Barbara A. Spellman & Alexandra Kincannon, *The Relation Between Counterfactual ("But For") and Causal Reasoning: Experimental Findings and Implications for Jurors' Decisions*, 64 L. & CONTEMP. PROBS. 241 (2001); Barbara A. Spellman & David R.

ity is a fundamental topic in the law: without a well-defined notion of causality we would not want to assign liability or punishment. Many weeks of law school, most memorably in torts and criminal law, were spent on issues of causality. Not only is there a lot for law students or lawyers to learn about case law involving causality, but for jurors there may be lengthy jury instructions at the end of a trial explaining how "causality" should be construed in that particular instance.

Elsewhere I have discussed various experimental findings relating causal and counterfactual reasoning and suggested implications for jury decision-making.[64] Here I describe a few things that psychologists know about how lay people reason about causality and how it is consistent, or inconsistent, with legal notions of causality.

A. Uninstructed People "Get" the Difference Between But-for and Proximate Cause

The law makes the distinction between causes in fact (or but-for causes) and causes in law (or proximate causes). To qualify as a but-for cause, something must be an antecedent to an outcome without which the outcome would not have occurred. There are, of course, an infinite number of things that would qualify as but-for causes of any outcome (see example below). However, the law distinguishes the larger set of but-for causes from the subset of things that will be treated as legal causes—thereby limiting our causal responsibility for the myriad consequences of our actions.

It turns out that uninstructed people easily distinguish between but-for and proximate causes of an event. I asked undergraduate subjects to read the following story:[65]

> A young woman was driving home from work. She had left early that day because it was a holiday weekend and traffic was very heavy. She was the first car to stop at a particular red light. Behind her was a long line of cars with a school bus at the end. As she was waiting for the light to turn green, she reached down to change the radio station. At that moment the light finally turned green, but she took an extra few seconds to find a song she liked. She then accelerated and the cars and bus accelerated behind her. Just as the school bus got into the intersection, a car driven by an upset man

Mandel, *When Possibility Informs Reality: Counterfactual Thinking as a Cue to Causality*, 8 CURRENT DIRECTIONS PSYCHOL. SCI. 120 (1999).

64. Spellman & Kincannon, *supra* note 63, at 261–64.

65. Barbara A. Spellman, The Relation Between Counterfactual and Causal Reasoning: Availability Mediates Some of the Similarities and Differences in Judgments 11–13 (2003) (unpublished manuscript, on file with author).

> who had been fired that day came screaming through the red light from the other direction hitting the bus and injuring many children.

Half of the subjects were instructed to answer a but-for question: "Please list four ways in which the events of the story could be changed so that the outcome would be different." The other half of the subjects were instructed to answer a "regular" causality question: "What would you say was the cause of the outcome? Please list as many factors as you think caused the result." They were then asked to rate each factor on a scale from 0–10 as to how important a factor it was.

Subjects in the but-for condition were very likely to list things related to the woman at the green light and to the holiday weekend as things that could be changed to change the outcome.[66] Subjects in the causality condition rated what the man did at the light as being the most causal event. Subsequent studies replicated that pattern.[67] In another study, subjects were given a long list of things to rate as to either but-for causality or regular causality. In the but-for condition, subjects rated all kinds of things as but-for causes (in addition to those mentioned above, and things related to the man being upset and running the red light, school being open that day, the position of the bus in the line, etc). In the causality condition, only things related to the man being upset and running the red light were rated as causal.

Note that these results should not be surprising. The legal philosophers Hart and Honoré have argued that the notion of what counts as a cause under the law is the same as people's notion of what counts as a cause in every day life.[68]

B. Uninstructed People "Get" How to Deal with Multiple Sufficient Causes

Cases of multiple sufficient causes create headaches for philosophers, lawyers, and psychologists. Consider the following example:[69]

> Reed hates Smith and wants to kill him. West also hates Smith (for an entirely different reason) and also wants to kill him. One day Reed shoots Smith in the head. At the exact same instant, West shoots Smith in the heart. Smith dies. The coroner says that either shot alone would have been enough to kill Smith.

66. *Id.* at 15.
67. *Id.*
68. H. L. A. HART & TONY HONORÉ, CAUSATION IN THE LAW at lv (2d ed. 1985).
69. Spellman & Kincannon, *supra* note 63, at 251.

Under a but-for causality rule neither Reed nor West caused Smith's death: Reed could argue that if he had not shot Smith, Smith would have died anyway; West can argue exactly the same thing. Yet the law is not happy to let them go free and has figured ways to redefine but-for causality in such cases.[70]

What do uninstructed people do? When presented with the above fact pattern, and asked to list ways in which the events of the story could be changed so that the outcome would be different, most subjects wrote that they would have to change both Reed and West's actions together to change the outcome. Subjects who were asked to list the causes of the outcome listed Reed and West individually. And when asked how much jail time each should serve, most gave Reed and West each the maximum.[71]

Thus, despite acknowledging that neither Reed nor West alone was a but-for cause of Smith's death, subjects treated them as individually causal—in accordance with what the law proscribes.

C. Other Uninstructed Causality Judgments

Subjects acting as mock jurors do not get all causal reasoning "right" according to the law. For the most part, they "get" superceding intervening causes.[72] However, they may inappropriately take the length of a causal chain into account and show a "causal proximity" bias (*i.e.*, view events closer to the outcome as more causal).[73] Their causal judgments may also be influenced by different counterfactuals that come to mind or that are presented while they are reasoning about a case.[74]

70. Robert N. Strassfeld, *If . . . : Counterfactuals in the Law*, 60 GEO. WASH. L. REV. 339, 352–57 (1992).

71. Spellman & Kincannon, *supra* note 63, at 252–53.

72. Barbara A. Spellman, The Construction of Causal Explanations for Temporally Related Events (1993) (unpublished Ph.D. dissertation, University of California, Los Angeles) (on file with author).

73. Joel T. Johnson & Jerome Drobny, *Proximity Biases in the Attribution of Civil Liability*, 48 J. PERSONALITY & SOC. PSYCHOL. 283, 287 (1985).

74. Nyla R. Branscombe et al., *Rape and Accident Counterfactuals: Who Might Have Done Otherwise and Would It Have Changed the Outcome?*, 26 J. APPLIED SOC. PSYCHOL. 1042, 1061–64 (1996); Spellman & Kincannon, *supra* note 63, at 261–64; *see* NEAL FEIGENSON, LEGAL BLAME: HOW JURORS THINK AND TALK ABOUT ACCIDENTS 125, 155 (2000) (examples of lawyers' actual use of counterfactual arguments).

D. *Do Jury Instructions About Causality Help?*

A major question we are left with is whether jury instructions help jurors to reason about causality in the way the law wants them to reason. I think that the conclusion from the experimental evidence we have so far is: we don't know.

What happens when subjects are asked to reason about (legal) causality when no instructions are given? When subjects acting as mock jurors making decisions about punitive damages were notinstructed at all on issues of causality, some subjects (60 percent) spontaneously raised issues of causality and of those many (58 percent) wrote as if they were considering but-for causality to be their guide.[75] (On the other hand, the Reed and West experiment described above suggests that subjects do not always spontaneously use but-for causal reasoning—at least when it is not appropriate in cases of multiple sufficient causes.)

What happens when instructions about causality are given? In a different set of studies, involving causal proximity (*i.e.*, the length of a causal chain from the initial negligent action to the outcome), subjects were given jury instructions on causality. One set of experimental materials was described as follows:[76]

> In the handgun case a businessman left a briefcase containing handguns in an empty chair of an airport waiting area. In the simple-causal-chain version, the briefcase was stolen by a maladjusted individual who used one of the guns to shoot and severely injure a taxi driver. In the complex-causal-chain version, the briefcase was taken by a security guard to the lost-and-found department, where the gun was stolen by the lost-and-found clerk. The maladjusted individual later picked this gun from the pocket of the clerk and used it to shoot the taxi driver. In both versions the driver sued the businessman for his injuries.

The jury instructions included definitions of negligence and proximate cause[77] but did not mention how jurors should consider the length of a causal chain; however, in the second experiment the subjects also read "[a] person . . . is not relieved of liability because of the intervening act of a third person (or persons) if such act was reasonably foreseeable at the time of his negligent conduct."[78]

75. Reid Hastie, *The Role of "Stories" in Civil Jury Judgments*, 32 U. MICH. J.L. REFORM 227, 236 (1999). Note that subjects in this experiment were not students, they were "citizens sampled from the Denver area." *Id.* at 233.

76. Johnson & Drobny, *supra* note 73, at 285.

77. BAJI Nos. 3.00, 310, 3.11, & 3.75 (6th ed. 1977) (California Jury Instructions Civil).

78. Johnson & Drobny, *supra* note 73, at 288.

Regardless of the particular instructions, in both experiments subjects rated the defendant as being less liable in the scenario with the longer causal chain.[79] The authors suggest that "one factor contributing to the causal proximity effect may have been some subjects' disregard of these instructions."[80] However, because there is no condition in which subjects were *not* given instructions, we cannot actually evaluate the effect of the instructions per se.

What happens when instructions about things that jurors think they understand well—other than causality—are given? A very interesting set of studies by Vicki L. Smith suggests that sometimes people will rely more on their commonsense views than on judge's instructions.[81] Smith had some subjects describe what they thought were the elements of various crimes including assault, burglary, kidnapping, murder, and robbery. She found that people had ideas of what these crimes would generally be like (*i.e.*, "prototypes"). Other subjects, acting as mock jurors, read various crime scenarios and were given instructions about the elements of the crimes. She found that regardless of when the instructions were given (either before or after reading the crime scenarios), subjects were more likely to convict when the crimes were closer to the prototype, and that instructed subjects made the same judgments as subjects who did not receive instructions about the elements of the crime at all.[82] Thus, subjects used their pre-existing knowledge or beliefs about what constitutes a particular crime rather than the judge's instructions about what constituted the crime.

E. Should Jurors Be Instructed About Causality?

The question whether jurors should be instructed about causality has two components. The first is related to the discussion in Section D above—can jury instructions help jurors to reason about causality in the way the law wants them to reason? Instructions are good in that they create uniformity both to all the jurors in the same case and to jurors across cases. However, given Smith's findings, and given that

79. *Id.* at 290.

80. *Id.* at 293.

81. Vicki L. Smith, *Prototypes in the Courtroom: Lay Representations of Legal Concepts*, 61 J. PERSONALITY & SOC. PSYCHOL. 857, 868–69 (1991) [hereinafter Smith, *Prototypes in the Courtroom*]; Vicki L. Smith, *When Prior Knowledge and Law Collide: Helping Jurors Use the Law*, 17 L. & HUM. BEHAV. 507, 508 (1993) [hereinafter Smith, *When Prior Knowledge and Law Collide*].

82. Smith, *Prototypes in the Courtroom*, *supra* note 81, at 868; Smith, *When Prior Knowledge and Law Collide*, *supra* note 81, at 532–33.

people certainly have pre-existing knowledge and beliefs about causality, we might infer that in any clash people will rely on their own beliefs rather than on jury instructions when evaluating causality.

The second component is to ask whether the law *should* want people to reason differently about causality in a case than in everyday life. Hart and Honoré often defend the view that cause in law is like cause in life, for example: "causal judgments, though the law may have to systematize them, are not specifically legal. They appeal to a notion which is part of everyday life and which ordinary people, including jurymen, can handle with a minimum of guidance."[83] The notion of proximate cause often seems to be an attempt to capture societal views of fairness.[84] Perhaps causality might be an issue for which community views and people's moral intuitions *ought* to be guiding the legal standards.[85] But before changing anything, psychologists should learn more about those views and, if necessary, whether and how instructions could work.

III. OTHER TOPICS IN COGNITIVE AND SOCIAL PSYCHOLOGY

A. Other Topics I Have Studied

When I look at the list of other topics I have researched as a psychologist, I find it simple to relate each to issues in the law. With various collaborators, I have studied hypothesis testing—how people evaluate evidence and theories. In particular, we looked at how people search for, and use, evidence that might disconfirm a hypothesis.[86] Several good research programs have applied insights from cognitive

83. HART & HONORÉ, *supra* note 68, at lv.

84. Proximate cause

> is merely the limitation which the courts have placed upon the actor's responsibility for the consequences of his conduct. In a philosophical sense, the consequences of an act go forward to eternity, and the causes of an event go back to the discovery of America and beyond. . . . As a practical matter . . ., [s]ome boundary must be set to liability for the consequences of any act, upon the basis of some social idea of justice or policy.

WILLIAM L. PROSSER, HANDBOOK OF THE LAW OF TORTS 236–37 (4th ed. 1971).

85. This idea is suggested by Robinson and Darley's consideration of community views and criminal law. PAUL H. ROBINSON & JOHN M. DARLEY, JUSTICE, LIABILITY, AND BLAME: COMMUNITY VIEWS AND THE CRIMINAL LAW 212–15 (1995).

86. Alexandra Kincannon & Barbara A. Spellman, *The Use of Category and Similarity Information in Limiting Hypotheses*, 31 MEMORY & COGNITION 114, 130–31 (2003); Barbara A. Spellman et al., *Hypothesis Testing: Strategy Selection for Generalising Versus Limiting Hypotheses*, 5 THINKING & REASONING 67 (1999).

and social psychology to how jurors use evidence in arriving at a verdict.[87]

I have done some research in the field of metamemory—people's beliefs about how their own (and others) memory will perform—and metacognition—people's beliefs about how well they understand information.[88] In general, the field of memory has been one of the dominant areas within psychology and law research. Research on eyewitness testimony and line-up identifications certainly represents some of the successes of psychology research in influencing the legal system.[89] Studies have examined jurors' willingness to believe witnesses who seem confident in their memories, despite the fact that researchers know that confidence and accuracy are often uncorrelated.[90] However, more could be done to examine, for example, whether jurors really understand the problems of weighting different kinds of evidence (*e.g.*, hearsay evidence) and whether jurors can accurately judge whether they have understood expert testimony or jury instructions. Note that the issue in metacognition is not *whether* jurors understand, for example, jury instructions; there is plenty of research showing that often they do not. The issue is one of calibration—are they good judges of whether or not they understand. If people know that they don't understand something, they can ask for clarification (if they feel free to do so and if clarification is available). The dangerous situation is when they don't know that they don't understand and so proceed anyway.[91]

87. *See, e.g.*, Nancy Pennington & Reid Hastie, *Explaining the Evidence: Test of the Story Model for Juror Decision Making*, 62 J. PERSONALITY & SOC. PSYCHOL. 189 (1992); Deanna Kuhn et al., *How Well do Jurors Reason?: Competence Dimensions of Individual Variation in a Juror Reasoning Task*, 5 PSYCHOL. SCI. 289 (1994).

88. Barbara A. Spellman & Robert A. Bjork, *When Predictions Create Reality: Judgments of Learning May Alter What They Are Intended to Assess*, 3 PSYCHOL. SCI. 315, 315–16 (1992).

89. But as Gary Wells points out, what convinced the legal field to take the psychologists' suggestion how to use line-ups was *not* that they thought the research was good and persuasive. Good research in this area has been around for a while. Rather, what convinced them was the more common use of DNA evidence, and the discovery that there were many people on death row who didn't belong there, and that most of them were convicted mainly or solely on the basis of an eyewitness identification. That, he says, is what pushed the courts into checking in with the psychologists.

90. Steven Penrod & Brian Cutler, *Witness Confidence and Witness Accuracy: Assessing Their Forensic Relation*, 1 PSYCHOL., PUB. POL'Y, & L. 817, 825–26 (1995); John S. Shaw III & Tana K. Zerr, *Extra Effort During Memory Retrieval May Be Associated With Increases in Eyewitness Confidence*, 27 L. & HUM. BEHAV. 315, 326–27 (2003).

91. Regarding jurors' ability to understand instruction, see generally Joel D. Lieberman & Bruce D. Sales, *What Social Science Teaches Us About the Jury Instruction Process*, 3 PSYCHOL., PUB. POL'Y, & L. 589 (1997); Alan Reifman et al., *Real Jurors' Understanding of the Law in Real Cases*, 16 L. & HUM. BEHAV. 539 (1992).

I have also investigated inhibition in memory—how actively using some information in memory might cause other competing information to become inaccessible.[92] John Shaw and colleagues have directly applied this research to issues involving the repeated questioning of witnesses to a crime and found similar results.[93]

B. Current Topics in Psychological Research

In Fall 2002, I taught a graduate course called Cognitive and Social Psychology Issues in the Law. The class included eleven psychology graduate students, one psychology post-doc, and one lone, brave, law student.[94] The first day I went around the classroom and asked the students what each was doing research on. My intent was obvious—to illustrate how every topic could be made relevant to psychology and law. The task was simple.

What did the cognitive psychologists study?

The first student said that she studies cognition and aging. What relevant issues did the class come up with? They started in the courtroom—with declining memory and slower mental processes, should we worry about older jurors? But then they moved beyond it to issues including: age discrimination; the relation between declining cognitive abilities and the concept of "intent" in crimes and the perception of danger (should there be a "rational old person" standard); issues of competence; the fact that people try to take advantage of old people so there should be laws to protect them against scams; and the controversy over laws requiring older drivers to re-take driving tests.

The second student told us that she studies memory for information as presented in different kinds of displays—including virtual reality.[95] Again, they started with juries—obviously that research is relevant for how information should be presented to jurors. But again, they moved beyond juries to issues regarding warning labels and road signs and violence on television.

92. Michael C. Anderson & Barbara A. Spellman, *On the Status of Inhibitory Mechanisms in Cognition: Memory Retrieval as a Model Case*, 102 PSYCHOL. REV. 68, 88 (1995).

93. John S. Shaw III et al., *Retrieval-Induced Forgetting in An Eyewitness-Memory Paradigm*, 2 PSYCHONOMIC BULL. & REV. 249, 252 (1995).

94. Thanks to them all for a great class: Kevin Carlsmith, Liz Dunn, Mandy Hege, Debby Kermer, Jaime Kurtz, Anna Macintosh, Shawn O'Hargan, Charles Richardson, Karen Siedlecki, Jeanine Skorinko, Jeanine Stefanucci, Justin Storbeck, and Amelie Werther.

95. Jeanine K. Stefanucci & Dennis R. Proffitt, *Providing Distinctive Cues to Augment Human Memory*, *in* PROCEEDINGS OF THE TWENTY-FOURTH ANNUAL CONFERENCE OF THE COGNITIVE SCIENCE SOCIETY 840, 840–44 (Wayne Gray & Christian Shunn eds., 2002).

The third student told us that she studies source memory (that is memory for the origin of remembered information). Of course that topic, as a subset of eyewitness memory research, has long been a staple of psychology and law research.

The lone developmental psychologist does research on children's ability to use analogies. That topic has been researched with a particular eye towards children's ability to use dolls to represent themselves and others when they talk about sexual abuse.

And the social psychologists?

Two said that they study emotion—and the effects of emotion on memory and reasoning. We just laughed. There were too many places to start.

The post-doc told us that he studies why people want to punish others. He already has law-related publications on that issue.[96]

Two students said that they studied affective forecasting. Affective forecasting is currently a hot topic in social psychology.[97] It refers to peoples' ability to predict their future mental states. For example, you might ask a Chicago Cubs fan, "How happy would you be, on a 1–10 scale, the day after the Cubs won a World Series?" A typical answer might be 10. "How happy would you be a week later?" 9. The usual finding in such studies is that people can reliably predict the direction of their emotions (*e.g.*, they are right that they would be happier, rather than sadder, if the Cubs could win) but they greatly overestimate the duration of their emotions (*e.g.*, after a week they are pretty much back to their normal happiness baseline). Scholars are beginning to apply affective forecasting to law-related issues, most obviously to statutory and case decisions regarding damages and punishment.[98]

Another student said that she studies implicit attitudes—another hot topic in social psychology. The issue is whether people have unconscious attitudes—towards people, groups, and policies—that in-

96. Kevin M. Carlsmith et al., *Why Do We Punish?: Deterrence and Just Deserts as Motives for Punishment*, 83 J. PERSONALITY & SOC. PSYCHOL. 284 (2002); John M. Darley et al, *Incapacitation and Just Deserts as Motives for Punishment*, 24 L. & HUM. BEHAV. 659 (2000).

97. *See, e.g.*, Jon Gertner, *The Futile Pursuit of Happiness*, N.Y. TIMES MAG., Sept. 7, 2003, at 44; Elizabeth W. Dunn et al., *Location, Location, Location: The Misprediction of Satisfaction in Housing Lotteries*, 29 PERSONALITY & SOC. PSYCHOL. BULL. 1421, 1422, 1429 (2003).

98. Jeremy A. Blumenthal, *Law and the Emotions: The Problems of Affective Forecasting*, 80 IND. L.J. (forthcoming 2004).

fluence their thoughts and behavior. Reference to implicit attitude research has already filtered into legal consciousness.[99]

And another student said that she studies stereotyping—yet another hot topic in social psychology. When I disingenuously asked her what that had to do with law, she pointed to: criminal profiling; crime definitions and sentencing guidelines; juror selection; and juror's ability to have empathy for defendants and their biases in verdicts and sentencing.[100]

The above topics represent standard areas of basic research in a highly ranked (top 20) Psychology Department.[101] All have implications for the legal system. The last few weeks of the course, pairs of students selected topics, assigned class readings, and ran the discussion, on topics of their own choosing. What topics did the students choose? Jury selection; punitive damages; hate crime legislation; polygraphs; confessions; and the use of simulations and animation in courtroom exhibits. Not a terrible set of topics, but not a great set either. I think that they still do not understand the potential richness and value of their psychological knowledge. On the other hand, perhaps they were afraid to venture too far outward because they could not find any existing relevant law-related literature to assign to the class.

CONCLUSION

I tried to write this Article wearing my psychology hat but carrying my lawyer binoculars. That is not an easy thing to do. With my psychology hat on, I can see the appeal to psychologists of grabbing "sexy" law issues to research. It seems to me that psychologists often do not have a clue as to how relevant their everyday research is to the legal system—because they do not know what enough of the legal issues are. It also seems to me that lawyers find it easy to grab old psychology and apply it to law—because they do not know of the existence of current relevant psychological research.

99. *See* Amy L Wax, *Discrimination as Accident*, 74 IND. L.J. 1129 (1999).

100. Jeanine L. Skorinko, Race-Crime Associations and Consequences for Juror Decision Making (2003) (unpublished master's thesis, University of Virginia) (on file with author).

101. U.S. NEWS AND WORLD REPORT, BEST GRADUATE SCHOOLS 89 (2003 ed. 2002).

So here is my final thought—and challenge: (1) every law,[102] every procedure, every process, every precedent, every legal outcome is ripe for psychological study, and (2) every topic in "higher-order cognition" (which includes both cognitive psychology and social cognition) is ripe to be applied to the legal system.

To quote my anti-hero John McLaughlin: "Discuss."

102. Here I echo James R. P. Ogloff, who wrote: "Indeed, to the extent . . . *every* law has as its purpose the control or regulation of human behavior, every law is ripe for psychological study." Ogloff, *supra* note 4, at 474.