
20. CONCLUSION

Learning from Experience

In Section 1.7, we inquired into the nature of expertise—particularly the ways that experts integrate deliberative and intuitive processes into their judgments and decisions. And much of the book has been designed to provide the academic foundation for lawyers and policy makers to develop their own professional expertise in problem solving and decision making. This concluding chapter outlines what we hope you have learned in the classroom, and asks how you can develop and hone your expertise beyond the classroom.

20.1 LEARNING IN THE CLASSROOM: THE FOUNDATIONS OF PROBLEM-SOLVING EXPERTISE

The core analytic attributes that underlie problem-solving and decision-making expertise include:

- clarity about interests and objectives—your own, your clients', and your constituents';
- creativity in considering a problem in alternative frames;
- creativity in generating plausible alternative solutions that solve the problem and best satisfy the interests at stake;
- strategic planning—the ability to chart a course from wherever you are to a satisfactory solution;
- creativity and rigor in analyzing correlation and causation—creativity in developing hypotheses and methods for testing them, and rigor in applying the tests.

This book introduces some basic concepts and techniques for problem solving and decision making, including:

- A deliberative process checklist—essential for novices and often useful even for experts.
- Statistics, which provide a formal approach to hypothesis testing. Statistics is the empiricist's most fundamental tool, and an honest policy maker's best friend.
- Expected utility theory, which provides a formal approach to decision making, and a couple of easy-to-use tools: the subjective linear model for value-based decision making and decision trees for decision making under risk. Whatever its limits, expected utility theory sets a baseline for rational choice—strong enough as to require a justification for departures from it.

We have also devoted much attention to errors that attend intuitive decision making—the so called “heuristics and biases” research agenda in the field of judgment and decision making (JDM) and the insights of its offspring, behavioral economics. And we have described methods for helping avoid these errors, to the limited extent possible. Beyond the core domain of JDM, we have also looked at the dynamics of social influence in the belief that lawyers and policy makers are called upon both to influence others and to protect clients and citizens from pernicious influence.¹

How does the academic study of these matters bear on your development of *expertise* as lawyers and policy makers? Expertise depends as much on intuition as analysis. Yet, as the JDM and social psychology literature demonstrate, intuition is extremely vulnerable to biases, framing, and influence. How—as the JDM scholar Robin Hogarth asked—does one educate intuition?

The scientific method and statistics play important roles in the process. They suggest that even when one-off intuitive judgments must be made rapidly on the spot, they should be tested in retrospect—in aggregate, where possible—so you can see how well you fared and learn how to improve. The scientific method and statistics help you avoid some of the recurrent errors that we have examined. They press us to seek disconfirming evidence: a contingency table requires you to fill in the cells where there is *no* result. Statistics counter the availability and representativeness heuristics by treating sample size as an essential determinant of statistical significance. It counters overconfidence by requiring that statistical hypothesis testing state the acceptable margin of error.

We believe that developing the systematic habits of thought inherent in deliberative decision making improves subsequent problem solving done at the intuitive end of the spectrum, or at least facilitates reflective monitoring of intuitive judgments. We find a compelling parallel in Constantin Stanislavski’s description of an actor’s preparation:²

One cannot always create subconsciously and with inspiration. No such genius exists in the world. Therefore our art teaches us first of all to create consciously and rightly, because that will best prepare the way for the blossoming of the subconscious, which is inspiration. The more you have of conscious creative moments in your role, the more chance you will have of a flow of inspiration.

20.2 LEARNING FROM EXPERIENCE

Gary Blasi, from whom we borrowed our protagonist, Luis Trujillo, says that he “has acquired a significant body of knowledge—about opposing lawyers, about

1. ROBIN HOGARTH, *EDUCATING INTUITION* (Chicago: University of Chicago Press, 2001).

2. CONSTANTIN STANISLAVSKI, *AN ACTOR PREPARES 15* (Elizabeth Reynolds Hapgood trans., New York: Routledge, 1989).

trial judges, about the likely consequences of certain actions—from his many previous interactions with other lawyers, other judges.” It would be more accurate to say that Trujillo, like any other professional, has had the *opportunity* to gain this knowledge. For example, while Trujillo’s observation (in Chapter 1) about the judge’s reception to motions for summary judgment may well be correct, it may also be based on a few vivid personal experiences or on settled wisdom with little empirical foundation.

While experience is inevitable, learning from experience is not. The last item in our deliberative checklist in Section 1.4.1 included monitoring the outcome of the decision in order to learn from it. As Gary Klein writes, experts learn from experience in several ways:

- They engage in reflective practice, so that each opportunity for practice has a goal and evaluation criterion.
- They compile an extensive experience bank.
- They obtain feedback that is accurate, diagnostic, and reasonably timely.
- They review experiences to derive new insights and learn from mistakes.

Personal characteristics play a role as well. Mark Kelman writes:

People who might be described as “open-minded” rather than dogmatic, especially in the sense that they accept the possibility that their own thinking is fallible and that they feel obliged to evaluate the quality of arguments without much regard to their predispositions about how an issue ought to be resolved, are less prone to make many of the errors that . . . researchers have identified as “biases.” If one wants to get a quick, intuitive feel for the sorts of dispositions one might be trying to measure here, think about how two subjects might answer the questions: “People should always take into consideration evidence that goes against their own beliefs” and “No one can talk me out of something that I know is right.”³

The ability to learn from experience depends not only on the expert’s personal qualities and stance toward learning, but on the learning environment in which he or she works. Learning requires reliable feedback and requires using that feedback advertently. Robin Hogarth distinguishes *kind* learning structures, in which people receive good feedback, from *wicked* environments, in which feedback can be misleading.⁴ Determinants of the quality of the learning environment include the ratio of relevant to irrelevant or random feedback, and how exacting or lenient the system is with respect to incorrect judgments.⁵ With respect to the speed and systematicity of feedback, consider the difference

3. MARK G. KELMAN, *THE HEURISTICS DEBATE: ITS NATURE AND ITS IMPLICATIONS FOR LAW AND POLICY* (Oxford University Press, forthcoming 2010), *citing* KEITH STANOVICH, *WHO IS RATIONAL?* (Mahwah, NJ: Lawrence Erlbaum 1999).

4. HOGARTH, *supra* at 98.

5. *Id.* 88–89.

between a meteorologist predicting tomorrow's weather and one predicting changes in climate as a result of global warming.

Recurring to Section 8.5, you can think about learning from experience in terms of Bayesian updating. You start with a set of beliefs—the prior probability—based on what you have learned in school, through mentorship, prior experience, and hunches. Experience provides new data, based on which you revise your beliefs. A kind learning environment provides highly diagnostic feedback.

Unfortunately, the learning environments for many lawyers and policy makers tend toward the wicked. Granted that a lawyer who specializes in handling a limited number of issues—say, disability or personal injury claims—has many opportunities to get feedback, most lawyers deal with a pretty wide variety of situations. Because of the large number of exogenous variables affecting most policy decisions, the frequent disconnect between a good process and a good outcome, and the delay in learning what the outcome actually was, policy makers often get no useful feedback at all.

20.2.1 The Focused Feedback of Mentorship

An expert's mentorship of a novice provides a "kind" learning environment in which the novice engages in practice with the expert's feedback and corrections. One of the most reflective and eloquent descriptions of the acquisition of expertise is Mark Twain's account of becoming a riverboat pilot under the tutelage of the experienced pilot, Horace Bixby. In *Life on the Mississippi*, Mark Twain writes:⁶

It was plain that I had got to learn the shape of the river in all the different ways that could be thought of—upside down, wrong end first, inside out, fore-and-aft, and throrships,—and then know what to do on gray nights when it hadn't any shape at all. So I set about it. In the course of time I began to get the best of this knotty lesson, and my self-complacency moved to the front once more. Mr. Bixby was all fixed, and ready to start it from the rear again. He opened on me after this fashion—

"How much water did we have in the middle crossing at Hole-in-the-Wall, trip before last?

I considered this an outrage. I said—

"Every trip, down and up, the leadsmen are singing through that tangled place for three quarters of an hour on a stretch. How do you reckon I can remember such a mess as that?"

"My boy, you've got to remember it. You've got to remember the exact spot and the exact marks the boat lay in when we had the shoalest water, in every one of the five hundred shoal places between St. Louis and New Orleans; and

6. MARK TWAIN, *LIFE ON THE MISSISSIPPI* 57–64 (New York: Penguin Classics, 1883: 1962).

you mustn't get the shoal soundings and marks of one trip mixed up with the shoal soundings and marks of another, either, for they're not often twice alike. You must keep them separate." . . .

[Twain sees what he believes to be a dangerous reef, and Bixby orders him to run over it.]

As it disappeared under our bows, I held my breath; but we slid over it like oil.

"Now don't you see the difference? It wasn't anything but a *wind* reef. The wind does that."

"So I see. But it is exactly like a bluff reef. How am I ever going to tell them apart?"

"I can't tell you. It is an instinct. By and by you will just naturally *know* one from the other, but you never will be able to explain why or how you know them apart."

It turned out to be true. The fact of the water, in time, became a wonderful book—a book that was a dead language to the uneducated passenger, but which told its mind to me without reserve, delivering its most cherished secrets as clear as if it uttered them with a voice.

20.2.2 After Mentorship: Learning from Mistakes

Experience is a great teacher but the tuition is high.

Some professions provide structured peer learning opportunities even after the mentorship phase; the morbidity and mortality conferences at hospitals are paradigmatic. To a large extent, however, professionals' continuing learning must come from their own reflections on experience. This is certainly true of much lawyering and policy making. So how do we revise our views based on experience? And particularly, how do we learn from mistakes?

In earlier chapters we saw that once people have committed to a course of action, there arise psychological barriers to changing that course. Beliefs, once formed, have a way of sticking, even in the face of evidence that they are mistaken.

Recognizing the mistakes and biases of others is often very easy. It may be obvious that Jim is far too optimistic about his investment portfolio, or that Anne may have fallen prey to the availability heuristic in deciding that driving across the country is safer than flying. Recognizing mistakes in our own reasoning, however, can be much more difficult. Building on Lee Ross's concept of *naïve realism* (Section 9.8), Emily Pronin, Thomas Gilovich, and Lee Ross have coined the term *bias blind spot* to describe people's readiness to see others' biases while believing that their own thinking is relatively bias-free.⁷

7. Emily Pronin, Thomas Gilovich, and Lee Ross, *Objectivity in the Eye of the Beholder: Divergent Perceptions of Bias in Self Versus Others*, 111 *PSYCHOLOGICAL REVIEW* 781–99 (2004).

In concluding the book, let us review some common ways in which biases hinder learning from experience.

Confirmation biases. As we saw in Section 10.3, people tend to seek out evidence that supports their existing (or preferred) hypothesis and avoid looking for evidence that contradicts it. Closely related is the *biased assimilation* of evidence—our tendency to view evidence that favors our beliefs more favorably and less critically than evidence that challenges them. *Belief perseverance* is a cousin of these phenomena. Once we have formed an initial belief about any fact or value, we tend to process new information in light of our belief. If we have accumulated a network of supporting beliefs, it can become extremely difficult to reverse course, even when new evidence suggests that it would be reasonable to do so.

What Jerome Bruner and his colleagues have termed the “thirst for confirming redundancy”⁸ has motivational as well as cognitive roots. We get invested—sometimes literally—in our own ideas and practice. The possibility of their being wrong can be a blow to our pocketbooks as well as our egos and reputations.

Poor feedback mechanisms. Learning from mistakes depends on feedback. Sometimes it is difficult to get feedback just because the data are not available, or not available quickly or in sufficient quantity or in a form conducive to learning. We are also prone to *distortions in acquiring data*—because of stress, schemas, and expectations—and to *distortions in retention and retrieval*—because of intervening events or just plain forgetting. We tend *not to notice omissions* (the dog that didn’t bark in the nighttime). If these are largely cognitive phenomena, there’s a strong motivational one as well: *avoiding feedback to minimize regret*.

Under- and over-generalization. Data are often presented in ways that make it difficult to generalize, to connect the dots. On the flip side, we readily overgeneralize, seeing relationships where none exist. This results from basic statistical errors—misunderstandings of probability, randomness, independence, sample size, regression to the mean—exacerbated by the illusion of control and the availability heuristic.

The flipside of the illusion of control is the *self-fulfilling prophecy*, where our empirical judgment actually affects the outcome. An example is the “Pygmalion” effect, where students who are predicted to perform better actually do so. There’s a story about a nineteenth-century physician who didn’t wash his hands between examining patients for a particular infectious disease and was therefore very good in predicting that the next patient he examined would have the disease.

Hindsight bias—the erroneous belief that we “knew it all along”—is also a barrier to learning from experience. Because many decisions are made in conditions of uncertainty about the outcomes, and because improving our

8. JEROME BRUNER, JACQUELINE GOODNOW, AND GEORGE AUSTIN, *A STUDY OF THINKING* (New York: Wiley, 1956).

decision-making prowess often depends on improving our predictions, each time we think that we “knew it all along” we lose an opportunity to improve.

Blame-avoidance strategies provide tremendous barriers to learning from experience. The phenomenon known as *attribution bias* leads us to attribute success to our ability and our failures to bad luck, our good deeds to our superior character and our bad deeds to compelling circumstances.”⁹ As the Duke of Wellington is said to have quipped, “victory has a thousand fathers; defeat is an orphan.”

Defensiveness. Even if you don’t kill the messenger, acting *defensively* will at least signal him not to bring you bad news again. We know a few people who are genuinely nondefensive—who will accept a criticism with dispassion or even invite it. Here’s an alternative for those of us who don’t have this quality: Whatever your inner feelings when someone criticizes you, *act* nondefensively. Not only will you get a lot more information that way, but you may actually become less instinctively defensive.

* * *

The overarching hypothesis of this book is that academic study can lay the foundation for developing expertise in problem solving, decision making, and professional judgment on the job. If many aspects of this hypothesis remain to be tested, it nonetheless seems like a pretty good bet. At very least we hope that you have learned something interesting about human behavior, including your own.

9. Lee Ross, *The Intuitive Psychologist and His Shortcomings: Distortions in the Attribution Process*, in L. BERKOWITZ (ed.), *ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY* (VOL. 10) 173–220. (New York: Academic Press, 1977).

