Predictable Misjudgment: How Intuition Misleads Lawyers, Judges, and Others

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[Appropriate thanks for the opportunity to speak.]

Society hopes that its professionals—from medical doctors to politicians to trial judges--make good decisions. Professional judgment requires not only knowledge about a discipline, but also sound decision making skills.

Research on human judgment and choice, however, suggests that most people rely too heavily on emotion and intuition when making decisions. Professionals are no different. Even though professional decision makers possess far more knowledge than lay decision makers, too often, they rely on their intuition, rather than their advanced knowledge. Although expert intuition is surprisingly accurate, it is also a common and predictable source of mistaken judgment.

The thesis that professionals develop intuitive and misleading reactions to decisions they must make arises directly from the contemporary research on the psychology of judgment and choice. Several lines of research within this field demonstrate that human beings use two distinct systems of reasoning to make decisions: an intuitive system that relies on close associations and emotions and deliberative system that relies on the application of rules, mathematical calculations and deductive logic. Although this dichotomy is obviously an oversimplification, this simple distinction between intuitive reasoning and deliberative reasoning describes a surprisingly broad array of phenomena of judgment and choice in both laypeople and professionals.

Although obviously, I am suggesting that reliance on intuition is a problem for good judgment, it is important to recognize that the influence of the intuitive system per se is not the source of difficulty. We need a powerful intuition system. We need intuitive reactions to keep us safe from physical threats and emotions allow us to function properly in social settings. The problem that intuition poses for judgment and choice, however, arises from three properties of intuitive thinking: 1) it is fast (much faster than deliberative reasoning); 2) it is confident, or even overly confident; and 3) it is somewhat unconscious. Hence, simple and erroneous answers to problems can suggest themselves, and are difficult to override with deliberative reasoning.

Let me illustrate this with three simple decision-making problems developed by Shane Frederick and Daniel Kahneman. I will not poll the audience, but I want you to try to answer these as I put them up;
Question #1

(1) A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost? _____cents

The structure of the question induces most people to think 10 cents is correct. Though intuitive, this answer is wrong, as a bit of reflection shows. If the ball costs 10 cents, and the bat costs one dollar more, this means that the bat costs $1.10. Adding those two figures together, the total cost of the bat and ball would be $1.20, not $1.10, as specified by the problem. The correct answer is thus five cents. That is, the ball costs five cents, the bat costs $1.05, and together, they cost $1.10.

Question #2

(2) If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? _____minutes

Most people respond with the implicit 5-5-5, 100-100 alliteration in the second question with the answer of 100. This answer is wrong because if five machines make five widgets in five minutes, this means that each machine makes one widget in that five-minute time period. Thus, it would take only five minutes for 100 machines to produce 100 widgets (just like 200 machines would make 200 widgets in that same five-minute period).

(3) In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? _____days

The third combines the “one half” with the 48 to make it seem like 24 is the right answer, but this is also wrong. The correct answer, obvious upon reflection, is 47 days. If the patch of lily pads doubles each day and fully covers the lake on the 48th day, it will cover half the lake the day before. Thus, the correct answer is 47 days, not 24 days.

Each of the three CRT items has a correct answer that is easy to understand; each also has an intuitive, but incorrect, answer that almost immediately comes to mind. Three aspects of these questions illustrate how intuition commonly wins in conflicts with deliberation.

First, people perform poorly on the CRT, even though the questions are easy. The problems are not like those on a test of intelligence, which tax the deliberative system’s abilities. Rather, they test the willingness to engage the deliberative system. Second, the intuitive answers identified above (10 cents in the bat-and-ball problem, 100 minutes in the widget problem, and 24 days in the lily-pad problem) are the most common wrong answers provided. This shows the intuitive system is working to interfere with accuracy. Third, people who select the intuitive answers are more likely than those who answer correctly to indicate that the problems are easy. In the bat-and-ball problem, for instance, subjects who provided the intuitive response (10 cents)
predicted that 92% of people would solve the problem correctly; by contrast, subjects who responded correctly predicted that only 62% of people would do so. (Frederick & Kahneman, 2002). The intuitive system produces more confident judgments, even though they are wrong.

But does the same phenomenon occur in professions in which they are experts? In my own work with other colleagues, we have investigated whether judges, lawyers and related legal professionals mistakenly rely too heavily on intuitive decision making strategies. In our work, we present these kinds of professionals with hypothetical questions that are similar to the three items I presented in that they induce misleading intuitive thinking, but which are set in settings that should be familiar to these professionals.

Let me give you one example of the work we have done on trial judges. We asked a group of 136 trial judges attending a national conference of judges in the United States to make a sentencing decision in a criminal case. The case involved an individual who was convicted of a murder arising from a fight in a bar. We described the crime and the characteristics of the defendant in a few paragraphs and asked the judges to identify an “appropriate sentence”. For half of the judges, we asked them to answer the question in years. For the other half, we asked them to answer the question in months.

The results were surprising. Even though the judges sentenced the defendant to an average of just over 9 years, the average sentence in months was only 60 months—or 5 years. We contend that the reason is intuition. 108 months seems like too lengthy a sentence to the judges, even though 9 years seems like a measured response to a violent crime. Sentencing in months seems to emphasize just how long the sentence really is.

A second example of how intuition can be misleading comes from trial judges working with numbers in the context of civil damages. We asked administrative law judges to identify an appropriate damage award for a civil rights violation filed with a city human rights commission. We gave the judges a full page of details about the case. The case involved an administrative assistant named “Veronica”, who worked for a firm that did contract work for a major city. The materials indicated that Veronica had a good employee record, but a new manager began calling her racially derogatory names and insulting her nationality (the materials stated that she was Mexican American) in front of friends and co-workers. When she complained, he fired her. The materials then stated that Veronica obtained another position right away, which meant that damages arising from her complaint were limited to “mental anguish.”

The materials describe some measure of suffering arising from the incident, and include some testimony by Veronica. In one version of the testimony, Veronica asserts that she recently saw a case similar to hers on a “court television show where the plaintiff received a compensatory damage award for mental anguish.” In the other version, we added the number $415,300 before the word “compensatory.” In all cases, the testimony is irrelevant and inadmissible. Indeed, a group of appellate judges concluded that the testimony should not be
admitted, although they also asserted that if the testimony had been admitted, it would have constituted harmless error.

The median award damage award for judges who had not been exposed to the number was only $8,000. But among judges who heard the $415,300 figure, the median award was $50,000. Exposing judges to a meaningless reference to an unidentified (possibly fictitious) television show made a minor slight seem like a major source of distress.

Intuition also affects how lawyers think about cases. To demonstrate this, we asked highly experienced lawyers to evaluate a settlement offer in a civil lawsuit. The materials described a case involving a defective set of machines manufactured by the defendant. The parties disagreed on whether the defect constituted a breach of a contract. The value of the machines was $1,000,000, and the materials indicated that the purchaser of the machines had a 50% chance of recovering, albeit only with a costly trial. The manufacturer had offered to settle the case for $480,000.

We varied one aspect of the case. We told half of the lawyers that the purchaser had already spent $90,000 pursuing this claim. For this group, accepting the settlement would put them $390,000 ahead overall—far short of the $1,000,000 that they had spent on allegedly useless equipment, but still better than nothing. We told the other half that the purchaser had already spent $430,000 pursuing this claim. For this group, accepting the settlement would hardly have made the lawsuit worth filing.

The amount spent had a large effect on the attorneys. Among those who had spent very little, the settlement seemed like a good idea; only 20% rejected it. By contrast, fully half of those who were told that a lot of money had already been spent rejected the settlement. For both groups, the money they have already spent is gone—the materials affirmatively state that they cannot recover these expenses. The sensible response to sunk costs like this is to ignore them and focus on the risks and benefits of going forward. But accepting the settlement requires realizing the sunk costs, thereby inspiring a different reaction to the case when more money had been spent.

Finally, consider a set of results from a study we conducted on reinsurance executives. Reinsurance is the business of providing insuring to insurance companies. Insurance requires that insurable events, like damage to automobiles, are independent. Each insured driver presents some risk of accidents, and a large pool of drivers will create a predictable number of accidents in any given time period. Through random variation or systematic influences, an excess of claims might be filed in a given year that would threaten the financial stability of an insurance company. To guard against that, insurance companies must purchase what is called reinsurance.

We assumed that reinsurers would have a great understanding of the laws of probability. After all, their business is founded on probability theory. We gave leading reinsurance executives a variation on an old problem from the literature on judgment and choice. We told
them that they were considering the price of malpractice insurance for 2 hospitals. We told them that each hospital has a malpractice claim rate of 1 for every 200 surgeries. We also told them that the small hospital performs 1,500 surgeries each year, whereas the larger hospital performs 4,500 surgeries each year. We asked them “at which hospital is it more like that the rate of malpractice claims will exceed 1% in any given year?” We offered three options, the small hospital, the large hospital or to conclude that both are equally likely.

Although intuition suggests that the answer is equally likely, this is completely wrong. In fact, assuming no systematic variation, the likelihood in the small hospital is 1 in 3000, whereas it is over 1 in 1 million in the large hospital. Thus, not only is it more likely to be the small hospital, it is about three thousand times more likely. This is something reinsurers should know, and yet, they relied pretty heavily on intuition. Most (59%) said it was the same, and the rest split about equally. Only one in five were able to answer a question that runs right to the heart of their business model.

Conclusions

People have a strong intuitive streak. In several contexts, professionals seem to prefer intuitive answers to problems, even though intuition leads them astray. Professional invariably know much more about the contexts in which they make choices than laypersons. But knowledge alone will not produce better judgments unless professionals also learn to slow their decision making processes to undertake deliberative assessments.