The Neuroscience of Social Decision Making

These materials were prepared by Robyn L. Wishart of Slater Vecchio LLP, Vancouver, BC, and Paul J. Scoptur of Aiken & Scoptur, SC, Milwaukee, WI, for the Continuing Legal Education Society of British Columbia, March 2014.

© Robyn L. Wishart and Paul J. Scoptur
THE NEUROSCIENCE OF SOCIAL DECISION MAKING

I. How the Science Works

In the 1990s, it was discovered that the same MRI machine that allows us to use magnetic fields and radio waves to take grey scale pictures of our knees and spinal cord could also be used in a different mode to make microscopic blood flow movies from hundreds of thousands of sites independently in the brain (“fMRI”).

Why is this important? Your brain is your operating system or “software” that guides what you do and how you do it. When you think, neurons fire (neural activity). Neural activity boosts blood flow in the brain. An fMRI records the location of blood flow in the brain.

So what? Before the discovery of the fMRI, we could not safely eavesdrop into healthy brain activity. Now, with fMRI technology, we can map what part of the brain is used when making a decision and map patterns to determine why.

What does this mean for the future of the neuroscience of social decision making? Still in its infancy, a computer program has been developed to synchronize up to six fMRIs over the Internet to record the neural activity of people while they interact. We do not think you will ever see a day where, as lawyers, we will be permitted to stick jurors in fMRIs hooked up to the Internet; however, the new frontier of the cognitive science will be mapping the patterns of neural activity that occurs within the interaction of a group of people.

II. What Neuroscientists Have Learned So Far

III. What It Means to the Practice of Law

As lawyers we want to believe that decisions flow from a stable set of rules, combined with a given set of facts, activated by a person’s choice. The truth is the decisions people make are profoundly influenced by our individual experiences and our environment or social interactions. Humans are social creatures even when we are alone. Our minds depend on other people and our thoughts and choices are shaped by social interaction. The study of social decision making has historically been anything but a science—until now. This paper will provide a basic explanation of the neuroscience of social decision making, set out what neuroscientists have discovered, and highlight what the science of social decision making means to the practice of law.

1 This paper was first presented at AAJ’s (formerly the Association of Trial Lawyers of America (ATLA®)) Winter Convention, Miami, FL, Feb. 2013.
II. What Neuroscientists Have Learned So Far

The threshold of neural activity needed to make a decision relies on three factors:

1. triggering memory,
2. accessing a value system, and
3. eliciting an emotional response.

Before you make a decision, your brain takes the following steps:

1. assesses the evidence for and against,
2. evaluates the possible outcomes and risks,
3. accesses certain learned responses and biases, and
4. lays down building blocks (choices flow from the outcome and perceived rewards and punishments of one choice after the other).

If we are alone in making a decision the process might stop here. However, choices and decisions that we make are rarely in social isolation. So, the next consideration will be a reflection on competing interests. Competing interests that influence decision making include:

1. psychological conflict (self interest vs. interest of others),
2. cost benefit analysis and (short term reward vs. long term gain), and
3. social conflict (emotion vs. reason).

The distinct features of social decision making include:

1. reciprocal exchange,
2. reciprocal benefit (benefit beyond a reward driven by the minimization of primary guilt, or the feeling of initiating a negative effect),
3. response to fairness and equity, and
4. altruism and punishment.

Refining it even further, nine key factors in social decision making include:

1. trust,
2. reciprocating trust or mutual cooperation,
3. responding to breaches of trust,
4. decisions about sharing,
5. responding to inequities,
6. altruism (helping someone at a personal cost),
7. norm abiding social behavior (sensitivity to the opinion of others),
8. social learning (what the actions of others teach us), and
9. competitive social interaction (intention detection).

How did neuroscientists figure this out from watching a microscopic blood flow movie? The answer is valuation. What is valuation? Valuation is reducing variation to a common class or group so that you can assign a value. In the context of social decision making neuroscientists have borrowed from a branch of experimental economics known as “game theory” to map social decision making.

Consider the prisoner’s dilemma: two men are arrested, but the police do not have enough information for a conviction. The police separate the two men, and offer both the same deal: if one testifies against his partner (defects/betrays), and the other remains silent (cooperates with/assists his partner), the betrayer goes free and the one that remains silent gets a one-year sentence. If both remain silent, both are sentenced to only one month in jail on a minor charge. If each “rats out” the other, each receives a three-month sentence. Each prisoner must choose either to betray or remain silent; the decision of each is kept secret from his partner.

What should they do? If it is assumed that each player is only concerned with lessening his own time in jail, the game becomes a non-zero sum game—where the two players may either assist or betray the other. The sole concern of the prisoners seems to be increasing his own reward. The interesting symmetry of this problem is that the optimal decision for each is to betray the other, even though they would be better off if they both cooperated with each other and remained silent.

In the classic version of the game, collaboration is dominated by betrayal (i.e., betrayal always produces a better outcome) and so the only possible outcome is for both prisoners to betray the other. Regardless of what the other prisoner chooses, one will always gain a greater payoff by betraying the other. Because betrayal is always more beneficial than cooperation, all “purely rational prisoners” would seemingly betray the other.

However, in reality humans display a systematic bias towards cooperative behavior in this and similar games, much more so than predicted by a theory based only on rational self-interested action.

Ok, so what’s our point? Games like the “prisoner’s dilemma” show us the rational or “optimal decision” to compare and value why we as humans do not always make the “optimal” choice. We can use the “optimal decision” to provide a framework for mapping the neural activity captured in the microscopic blood flow movies recorded by fMRIs.

Let’s give you another example. Consider the “ultimatum game.” Red person is given $100 and can offer a split to Blue person. Blue person can accept or reject any offer Red person makes, but if Blue person rejects the offer they both get nothing. A rational choice economist would say that Blue person should take any offer that is more than zero. However, clinical studies prove that if Red person offers an $80-$20 split to Blue person, there is a 50/50 chance that Blue person will reject the split resulting in both people getting nothing.

Why? Blue person knows what is fair and an $80-$20 split will make Blue person mad. The point of the game is to highlight how emotion can influence the decision you make.

III. What It Means to the Practice of Law

Jury deliberation is pure social decision making. A consensus must be reached. Consider the game theory examples, emotion will drive the process of deliberation more than the facts of the case. What this means is that case facts will only get you so far. Your success at trial is dependent on your ability as a lawyer to motivate jurors to adopt your legal arguments as their own and become the “social pigeon” or carrier of the idea (Durant 2011.)
How do you turn a juror into a social pigeon? To transfer your idea to a juror, your opening must first call the juror to action and then arm the potential carriers of your legal arguments with the tools to grow and promote your ideas.

So, how do you use this in a trial? Structure your trial story around contrasting opinions and rules. Why? The human brain is wired to process contrast good and bad, right and wrong, healthy or injured. Contrast is what forms the basis of all cognition including what you see, hear, and think. Without contrast there are no boundaries.

For example, a lack of contrast explains why people fall down unmarked stairs. I call this “compare and contrast.” Macknick & Martinez-Conde (2010). If you don’t create contrast, jurors will automatically do it for you. So weave into the case story intentional moments of contrast. Contrasting ideas can include comparing what is with what could be or what we know in relation to what they did or what they said. Compare and contrast the “happy ending” if the rule had not been broken with the “tragic ending” of the story because of the choice to break the rule by the defendant.

Why does this work? Each time you compare and contrast your ideas you are forcing jurors to make assessments. When a juror makes an assessment he or she is making a choice. A juror will believe information that he or she accepts and learns independently, and in the face of competing ideas will always elevate his or her own choice over the choices of others. Remember that you are making a social pigeon.

The information that you choose to contrast must be carefully selected. Do a focus group to figure out what facts are critical to your case. Why is the information that you choose to contrast so important? The human brain is the ultimate green machine constantly looking for order, pattern, and explanation to make predictions and assumptions. We are cognitive misers, creating short cuts that are both conscious and subconscious; but by being cheap we pay a price. The price is that we do not see things as they are we see things as “we” are. In other words, what you see, hear, and think is what you expect to see, hear, and think.

Jurors don’t believe what they see. They see what they believe. What you expect depends on what you have experienced in the past, what has been useful to you, or what you remember. In this way, you relate everything you see, hear and think back to yourself (the I-brain). Test it. Tell a story and if your story makes a connection with the people you tell it to, they will relate back to you their own personal experiences that are the same or similar. As advocates we can use this concept to improve our power of persuasion. If you can tap into the I-brain of a juror, you are another step closer to creating a social pigeon.

Why are rules important? Rules are tools for prediction, short cuts, and filing cabinets for case facts. When you use rules in a trial you are asking the jurors to make an assessment. Is the rule fair? Did the defendant break the rule? If the juror accepts the rule, it becomes the short cut he or she will use to file all of the case facts. The juror will accept or reject a case fact as something that either fits inside the rule or not. In this way rules establish bias. A bias is an assumption. An assumption is powerful because it is accepted as a truth. Facts need to be proven assumptions must be disproved. If jurors choose to accept the rule, they will not only sort the case facts through the rule they will work to enforce the rule during deliberations. A social pigeon is hatched.

When you compare and contrast information, and frame rules to lead jurors to evaluate rule violations for themselves, you have created an advocate in jury deliberations who will influence the social decision making process that we, as lawyers, cannot be a part of.