All.Net Analyst Report and Newsletter

Welcome to our Analyst Report and Newsletter

Every 15-20 years I do an update

It was 20 years ago or so, that Deception Toolkit was released. Since then I worked on Decider and Influence, both of which have been stable for a long time. But these days, with all the interest (it took a while) in influence operations and deception, I have been updating my Web presence to include analytical tools using the same mechanisms with a different interface and execution environment. That's when I start to notice things.

Influence – the application

The application called Influence has been operating since the early 2000s, and I have an issued patent on the method and apparatus. So the update to the application would normally, at most, involve rewriting it with an HTML interface using Perl instead of Java for the back end. We can debate languages in a different lifetime.

But as is my way, I look when I copy and test, not just to verify that it works as expected, but also to make certain to remind myself of how and why it works. And as usual, when I look I notice things. It's in my nature to find problems.

Cognitive errors

So I started to look at the details and I noticed what I consider to be an unchallenged fundamental flaw in much of the cognitive error related research.

The basic theory of deception and (undue) influence is that

- People (systems, groups, organizations, animals, etc.) make "cognitive" errors. That is, they do things that disagree with hard cold logic and don't make "sense" if viewed factually. There are lots of good examples of this, and I certainly have seen them and don't deny that they are real and happen.
- Deception / influence operations exploit these cognitive errors to cause behaviors that would not occur if the full story was known to the target of the deception / influence.

The classic example is a bet. They offer a bet of $100. We will flip a "fair" coin and the winner will get $200. The loser will lose their $100. That's a fair bet, 50-50 chances of winning or losing, reward/punishment exactly matched.

Here's the thing. In experiments, people were offered a bet. A fair coin flip was offered.

- If the coin came up tails the person would lose $100
- If it came up heads they would win $200 (walk away with $300).

The results of the experiment showed that, on average people needed to gain about twice as much (e.g., $200) as they were willing to lose in order to take the bet. So

- They would take the bet at $2X for the win and $1X for the loss.
- But not at $1.25X for the win and $1X for the loss.

This is a bias called "loss aversion". It is widely considered a cognitive error.

 Copyright (c) Fred Cohen, 2019 - All Rights Reserved

Is this really an error?

This “error” can be used against people successfully and is all the time. It’s a lot like charging $998 instead of $1,000. People will take the former but not the latter even though the difference is minimal. But is “loss aversion” in fact an error?

I spend a lot of my time helping grow companies. One of the key things we track is burn rate and runway. There is a reason. When you run out of cash, you go out of business. People who have something real to lose really don’t want to lose it. If you can’t make payments on your house, pretty soon, you will have nowhere to live.

Now let’s look at this bet again. Suppose instead of $100 the bet is for everything you have.

- If you lose, you lose everything you spent your life getting.
- If you win, you triple everything you have.
- It’s all bet on a fair flip of a fair coin!

This should be a good bet – right!

Wrong!

Why is this wrong?

- If it was a good bet at $100, it’s a good bet now. Nothing in the bet had to do with the amount. If it’s a good bet you should be willing to do it again and again.

So I will make the bet with you again and again. You rationally will take it again and again. Eventually, with increasing probability, you will lose everything. Once you have nothing you will continue to have nothing and gain nothing no matter how many times you make the bet.

The theorists will disagree

Yes. I know. The theorists will disagree. They will say to take the smaller bet again and again and you will statistically win again and again. But that’s my point. They are ignoring the reality of triple or nothing. Keep doing it and you end up with nothing.

Like most gambling, you should only bet what you can afford to lose.

The reality of loss aversion is that I spent a lifetime getting to where I am, and I don’t have another lifetime. It has value because I earned it. Not because of some theoretical economic benefit. The problem stems from two notions that are at the assumed basis of rationality:

- Money is fungible. Each dollar is the same and can be traded with any other.
- You can always get more of it. There is an unlimited supply. “All the rice in China”.

But for most people, money is really just a representation of something of value they have worked to bring to the world. They cannot get back the time they spent getting it in a later bet.

If I am planning to use $100 to take my wife out to dinner, that’s the benefit I am losing when I lose the bet for $100. If I win the bet, I might take her out to a better dinner, or take her out more than once, but the difference is not as big to me as the loss of not taking her out at all.

- The value comes from the effort and thought I put into getting it.
- I worked to take my wife out. Would I take $200 not to take her out?

 Copyright (c) Fred Cohen, 2019 - All Rights Reserved

Let's talk turkey

When I was just out of college, I bought a van and drove to Texas to start my first job. On the way, I stopped at a little county fair for some lunch and a break. As I was walking around, I saw a booth where they were taking bets on a proposition. I don't remember the specifics, but I do remember that with my math skills still in tact, I determined that if I kept betting, I would win. And soon. And I was right.

But when the winning pot showed up as expected, I was told that I had lost, not won. I disagreed and we started to debate the issue. As I looked around, there were plenty of roadies, but no policemen. I was offered a lesser amount, took it, and walked away. To be clear, they were dishonest. I walked away a bit wiser and poorer, but otherwise unharmed.

So I was what you would call a "turkey". It was like taking candy from a baby. Perhaps I should have stood up to them, maybe the implied threat was not a real one. And maybe I wouldn't be here today to talk about it. The thing is, not every game is fair. The "too good to be true" offer is also an indicator of a scam. My lesson was cheap. I got cider in my ear![1]

How do most businesses fail?

Most businesses fail. That's a widely understood and repeatedly verified fact of history. In my experience, and perhaps it's almost definitional, most businesses fail when they run out of money. As you run out of money, bad things start to pile up. You spend more time and effort, get less for it, cut things you depend on for success, get late in paying bills, pay more interest on larger loans, and the snowball starts to gather more snow as it rolls down the hill.

For the business owner / CEO the loss is not just about business. It's about what you put into it that's not money. This is a "cognitive error" called "sunk cost". You should not treat money already paid the same as money not yet paid. Yet, you hate to walk away from all that effort.

It's the same with your job!

I have a friend who recently got a new job. In the new job, there was the opportunity to be far more successful by immediately getting contracts in place to execute on deals that the new employer could not execute on alone. My friend (rightly?) decided not to push the issue.

I have another friend who has been working in a job for several years. There was an opportunity to gain a contract they were going to lose by immediately contracting to execute on deals that they could not otherwise execute on. My friend (rightly?) decided not to push it

- Why risk losing your job in order to be more successful at it?

If you believe these decisions are "errors", you should fire workers for not taking these sorts of risks. But that's not how the World works. And that's why for most folks it is better to lose opportunities for your employer time and again than to risk your job trying to win them.

Conclusions

I like the cognitive error model, and it makes a lot of sense. But we need to take care in understanding influence operations to not adopt all the "rational" conclusions as "right". Resources are limited, context is important, and losing X may be far more damaging than the benefit from gaining X. The world is sequential in nature.

---

1 Watch the musical "Guys and Dolls" to understand this reference properly.

 Copyright (c) Fred Cohen, 2019 - All Rights Reserved