

#### The Science of Self-Control:

Lessons Learned

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## **Our Journey**

- 1. Consciousness: What is it good for?
- 2. The Sense of Effort & Willpower
- 3. Willpower as a resource
- 4. Effort as a "cost"
- 5. Summary and Lessons





## Consciousness: What is it good for?

- 1. Q: Why do we experience *feels*?
- 2. A: Because *feels* are *useful*.
- 3. More precisely, animal brains like ours *reward* us when we do the "right" thing.

A. Note that "right" means "adaptive," not morally correct.

- 4. Fire hurts because fire damages tissue.
- 5. Sex is fun because it (is necessary for, often leads to) reproduction.





## Consciousness: What is it good for?

- 1. Some *feels* (conscious experiences) are easy to understand and explain, such as sex and pain.
- 2. More broadly, so-called "primary reinforcers" are straightforward: appetite/food, thirst/water...
- 3. Others are harder to understand and explain: why do humans experience *awe*, for instance?





## The Sense of Effort / Willpower

- 1. It *feels like something* usually unpleasant to do certain sorts of tasks, such as math problems.
- This feeling is similar to the feeling you have when you are avoiding temptation.
- 3. I will discuss two explanations for this feeling: the *resource* view and the *cost* view.





## Willpower as a Resource

"I'm trying to pare down decisions. I don't want to make decisions about what I'm eating or wearing..." ...the simple act of making decisions **degrades one's ability** to make further decisions..."

Barack Obama, October 2012





## One View: Willpower as a Resource

Self-control is "like a muscle..."

...that gets tired with use...

...so task performance depends on one's self-control resources...

...which get depleted by exerting self-control

Baumeister et al, 1998





# The resource model *dominated* inside and outside of the academy.



6,000 citations as of 12/2002. (The average number of citations for a paper is about... 10. 6,000 citations isn't a bad amount for a career.)



## The success of the resource model was... puzzling



- 1. The model provided no plausible account of exactly what the resource was. (Glucose was a non-starter)
- 2. The model did not specify any data that would falsify the model.
- A meta-analysis (McCullough et al., 2014) concluded that "the most unbiased estimate of the true underlying effect ... is not distinguishable from zero."



Theory

- 1. Additionally, it's important to note that the theory is rooted in a hydraulic conception of the brain.
- 2. But the brain is more like (but not exactly the same as) a computer.
- 3. A good theory should be about *computations*, not *brain stuff*.





## A HUGE test of the model

- Vohs et al. recently organized 36 labs to run more than 3,500 subjects to measure the size of the key result central to the resource view.
- 2. This is probably one of the largest empirical projects in the recent history of social psychology.
- 3. Result: "the (observed) data were four times more likely under the null than the alternative hypothesis"
- 4. That is, the central empirical result of this popular model does not replicate. The model is (almost certainly) false.





#### Lesson #1

- 1. Recall that this model was hugely popular, even, presidential.
- 2. It was, nonetheless, false.
- 3. There were many reasons to be concerned about this model. Skeptical voices were largely ignored.
- 4. BE CAUTIOUS IN EVALUATING CLAIMS DRAWN FROM SOCIAL PSYCHOLOGY. Both the press and the academy itself gets things wrong, sometimes at tremendous cost.





## Lesson #1 (con't)

- 1. Many popular ideas drawn from social psychology continue to be popular despite known empirical failures.
- 2. Some have argued that models persist despite profound empirical and theoretical difficulties if:
  - A. The model is "interestingly counter-intuitive." The so-called paradox of choice might be one such.
  - B. The model resonates with the political agenda of scholars. In social psychology, this is the progressive left. See, e.g., the IAT. (See Jesse Signal's new book, *The Quick Fix* or Stu Ritchie's book, *Science Fictions*.)





## Consciousness: What is it good for?

- 1. Some *feels* (conscious experiences) are easy to understand and explain: food tastes "good."
- Unpleasant sensations are usually trying to get you to stop something.
- 3. The pain of a fire, looking into the sun, etc. Some unpleasant sensations are to get you to stop doing what you're doing.





- 1. Compare multi-purpose tools with single-purpose tools.
- 2. Your retina is a single-purpose tool. When you're using it to see, there's nothing else it could be doing.
- 3. It is known that some parts of the brain have multiple functions.
- 4. So when you're using your brain to, say, do a math problem, it's hard/impossible to, say, plan.





- Doing a task with a multi-purpose tool carries an opportunity cost: the next best thing you could be doing with that tool.
- 2. A physical analogy is that when you are, say, typing, you can't eat. One (opportunity) cost of typing is eating.





- Doing a task with a multi-purpose tool carries an opportunity cost: the next best thing you could be doing with that tool.
- 2. Generally, the *cost* of something is the next best thing you could do. (In economics, it's the next best thing you could buy.)





- "Attention" is like this. The (opportunity) cost of attending to this presentation is the benefit you would get from shifting your attention elsewhere (to Instagram, your text messages, etc.)
- 2. This cost applies because attention can only be focused on one thing at a time. The cost is the benefit of the next best thing.
- 3. This might be why it feels "hard" to pay attention, especially when there are potential distractions.





- 1. The brain is consistently monitoring the benefits and (opportunity) costs of performing different tasks.
- 2. The possibility of switching to a more rewarding task is the *feel* of effort.
- 3. As this *feeling* increases over time, it is more difficult to persist, i.e., resist temptation.







In words: "...the sensation of "mental effort" is the output of mechanisms designed to measure the opportunity cost of engaging in the current mental task, motivating disengagement with it."

(Kurzban et al., 2013. See also Boksem, Meijman, & Lorist, 2005; Boksem & Tops, 2008; Botvinick, 2007; Hockey, 2011; Kool, McGuire, Rosen, & Botvinick, 2010; Kurzban, 2010a, 2010b; Lorist et al., 2005)



## **Effort: A Practical Note**

- 1. If this view is correct, then one (of many) factors that will influence how effortful doing a task feels are the other opportunities.
- 2. The presence of distractions (e.g., screens) should increase the sense of effort and diminish persistence.





## Summary

- 1. Lesson #1: Beware social psychological claims in the press and literature. Be especially attuned to claims that are *counterintuitive* and/or *political*.
- 2. Lesson #2: Functional approaches to psychology are showing continued promise.
- 3. Lesson #3: Plan to minimize distractions when you want to persist.





## Thank You!



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